
ORSON SCOTT CARD

SHADOWS IN FLIGHT

A SEQUEL TO THE NEW YORK TIMES
BESTSELLING ENDER'S SHADOW

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—*shadows-in-flight*—

CHAPTER 1



The starship Herodotus left Earth in 2210 with four passengers. It accelerated nearly to lightspeed as quickly as it could, and then stayed at that speed, letting relativity do its work.

On Herodotus, just over five years had passed; it had been 421 years on Earth.

On Herodotus, the three thirteen-month-old babies had turned into six-year-olds, and the Giant had outlived his life expectancy by two years.

On Earth, starships had been launched to found ninety-three colonies, beginning with the worlds once colonized by the Formics and spreading to other habitable planets as soon as they were found.

On Herodotus, the six-year-old children were small for their age, but brilliant beyond their years, as the Giant had been when he was little, for in all four of them, Anton's Key had been turned, a genetic defect and a genetic enhancement at the same time. Their intelligence was beyond the level of savants in every subject matter, without any of the debilitations of autism. But their bodies never stopped growing. They were small now, but by age twenty-two, they would be the size of the Giant, and the Giant would be long dead. For he was dying, and when he died, the children would be alone.

—*shadows-in-flight*—

CHAPTER 2



In the ansible room of Herodotus, Andrew "Ender" Delphiki sat perched on three books atop a seat designed for adults. This was how the children operated the main computer that processed communication through the ansible, the instant communicator that kept Herodotus linked to all the computer networks of the ninety-four worlds of Starways Congress.

Ender was reviewing a research report on genetic therapy that showed some promise, when Carlotta came into the ansible room. "Sergeant wants a sibmoot."

"You found me," said Ender. "So can he."

Carlotta looked over his shoulder at the holodisplay. "Why do you bother?" she said. "There's no cure. Nobody's even looking for it anymore."

"The cure is for us all to die," said Ender. "Then Anton syndrome disappears from the human species."

"How can you research it without lab equipment, without test subjects, without anything?"

"I have this incredibly brilliant mind," said Ender cheerfully. "I look at all the genetic research they're doing and I'm connecting it with what we already know about Anton's Key from back in the days when top scientists were working hard on the problem. I connect things that the humans could never see."

"We'll die eventually," said Carlotta. "The Giant is dying now."

"You know that's all Sergeant wants to talk about."

"The giant's supposedly as brilliant as we are. Let him work on Anton's Key. Now come along so Sergeant doesn't get mad."

"We can't let Sergeant boss us around just because he gets so angry when we don't obey." Still, Ender knew Carlotta was right. It wasn't his intent to pacify Sergeant. He simply understood that if Sergeant got angry, it would take him twice as long to say what he wanted. Ender's research time would be eaten up by his brother's ranting.

—*shadows-in-flight*—

Ender expected to find Sergeant in the Puppy -- the maintenance craft that was programmed by the Giant to remain within five meters of the surface of Herodotus no matter what contrary instructions it might be given. Ender knew Carlotta had tried for months to untether the Puppy, but she couldn't defeat the programming.

"It's the gravity lensing field," said Ender. "And it's active."

"It's just gravity. Ten percent of Earth. And we're sandwiched between two plates, it's not like we can fall."

"I hate the way it feels." They had played in that space when they were two-year-olds. It was like spinning around until you were dizzy. Only worse.

"Get over it," said Carlotta. "We've tested it, and sound really does get nullified in here."

"Right," said Ender. "How are we going to hear each other speak?"

"Tin can telephones," said Carlotta.

Of course they weren't the toy sound transmitters that they had made when they were really little. Carlotta had long since reengineered them so that, without any power source, they transmitted sound cleanly along ten meters of fine wire, even around corners or pinched in doors.

Sure enough, there was Sergeant, his eyes closed, "meditating" -- which Ender interpreted to mean that Sergeant was plotting how he would take over all the human worlds before he died of giantism at age twenty.

"Nice of you to come," said Sergeant. Ender couldn't hear him, but he could read his lips and besides, he already knew it was exactly what Sergeant was likely to say.

Soon they were hooked up in a three-way connection with Carlotta's tin cans. They all had to lie in a line with their heads turned, Ender between Carlotta and Sergeant so he couldn't decide to end the conversation and slither out.

"The Giant is taking a long time to die," said Sergeant.

In that instant, Ender understood the entire meeting. Sergeant was getting impatient. He was son of the king and ready to inherit.

"So what do you propose?" asked Ender neutrally. "Evacuate the air from the payload area? Poison his water or his food? Or will you insist we all hold knives and stab him to death in the Senate?"

"Don't be melodramatic," said Sergeant. "The bigger he gets, the harder it will be to deal with the carcass."

"Open the cargo bay and jettison it into space," said Carlotta.

"How clever," said Sergeant. "More than half our nutrients are tied up in his body and it's beginning to affect life support. We have to be able to reclaim those nutrients so we have something to eat and breathe as we get larger. If the Giant thinks we're going to kill him, he'll kill us first."

"Don't assume that the Giant is as evil as you," said Ender.

Carlotta tugged on his foot. "Play nice, Ender," she said.

Ender knew how this would play out. Carlotta would express her regret but she'd agree with Sergeant. If Ender tried to give the Giant extra calories, Sergeant would beat him and Carlotta would stand by, or even help hold him. Not that the beatings ever lasted long. Ender just had no interest in fighting, so he didn't defend himself. After a few blows, he always gave in.

But this was different. The Giant was dying anyway. That caused Ender enough anguish that the idea of hastening the process was unbearable.

Nothing unbearable had ever been proposed before. So Ender's reaction surprised even him. No, especially him.

Sergeant's head was right there, just above Ender's own. Ender reached up, and with all the power of his arms, he rammed Sergeant's head into the wall.

Blood sprayed out Sergeant's nose and floated in globules that "fell" in every direction in the turbulent gravity field.

Ender shaped his hand into a fist and drove a knuckle into Sergeant's eye.

Carlotta twisted on Ender's foot, shouting, "What are you doing? What's going on?"

Ender braced himself against her grip and drove the edge of his hand into Sergeant's throat.

Sergeant choked and gasped.

"Here's how it's going to be," said Ender. "Your reign of terror is over. You proposed murder and you meant it."

"He didn't mean it," said Carlotta.

"He meant it and you would have helped him with it," said Ender. "If you try to give orders to anybody again, I'll kill you. Do you understand me?"

"You would never kill me," croaked Sergeant.

"I think you're terrified by the fact that nobody ever stopped you from doing anything. Well, this is your lucky day. I'm stopping you from now on. Got it?"

"The Giant's going to ask what happened to Sergeant," Carlotta said.

"He won't have to ask," said Ender. "I'm going to repeat our conversation to him, verbatim, and the two of you will be there to listen."

—*shadows-in-flight*—

CHAPTER 3



Bean looked at his three children and it was only with effort that he concealed the depth of his grief and fear for them. He had known it was only a matter of time, and while he was relieved that Ender had finally woken out of his long pacifist slumber to end Sergeant's domination, he knew that they had only set the scene for conflict to come. What will happen when I'm gone? thought Bean.

Petra, I have botched this completely, but I don't know how I could have done it better. They've had too much freedom, but I couldn't chase them through corridors where my body no longer fit.

"Andrew," said Bean, "I appreciate your loyalty to me, and the fact that you repeated all conversations verbatim, including the incredibly stupid and dangerous things you said."



Bean watched as Ender blushed a little -- not from embarrassment, but from anger. He also saw how Carlotta looked a little relieved, and Cincinnatus -- Bean had always hated the nickname "Sergeant" -- got a sudden look of triumphant hope.

"Cincinnatus," said Bean. "The fact that Ender is not a killer does not mean he won't kill you, if he feels the need. You see, you're an attacker, a competitor, and you don't understand what Ender is -- a defender, like the boy I named him for. Just because he feels no need to control other people doesn't mean he'll let you take what he doesn't mean for you to have -- including my life. Including his own."

"He sprang on me without warning!" Sergeant shouted.

"You were introducing an entirely new element into your little world -- the murder of Ender's father. And you were so hopelessly ignorant of him that it never crossed your mind that he would react differently to this threat than he had to all your previous bullying," said Bean.

"He wasn't my enemy," said Sergeant.

"He's been the only enemy you faced since you first met him when Petra and I finally located all of you and brought you together when you were one year old. The other male antonine. The rival. You've done nothing that wasn't designed to keep him under your thumb for the past five years. Your imaginary enemies are all surrogates for Andrew Delphiki. You've designed humiliation after humiliation for him, manipulating your sister to side with you against Ender, and here's the sad result. Ender and Carlotta are productive members of our little four-person society, as am I. But you, Cincinnatus Delphiki, are a drain on our resources, producing nothing of value and disrupting the functioning of everyone else. Not to mention criminal conspiracy to commit first-degree murder."

To Bean's surprise, tears filled Sergeant's eyes. "I didn't ask to be on this voyage! I didn't want to go! I didn't like you, I liked Petra, but you never even asked what I wanted!"

"You were only a year old," said Bean.



"You weren't even a year old when you escaped from the lab where they were disposing of your fellow experiments! We could talk, we could think, we had feelings, and you didn't even ask, we were just ripped out of our homes and you and Petra announced that you were our real parents. This big ugly giant and an Armenian military genius. I wanted to stay with the family that was raising me, the woman I called Mother, the ordinary-sized, hardworking man I called Father, but no, you and your wife owned us. Like slaves! Taken here, sent there, your property. And I end up here? In space, near lightspeed, while the rest of the human race moves through time eighty-five times faster than we do. Each year of our lives is a whole lifetime for members of the human race. And you talk to me about my crimes? I'll tell you why I want you dead. You stole me from my real family! You gave me your emossin' Anton's Key and then you took away

everybody who ever cared about me and trapped me here with an inert giant and two weaklings who don't even have the sense to know they're slaves!"

[Bean had no answer.](#) In the five years of this voyage so far, it had never crossed his mind that the children might remember the women who had borne them when, as embryos, they were stolen and dispersed around the world, implanted in women who had no reason to suspect they were the in vitro offspring of the great generals Julian Delphiki and Petra Arkanian.

"Our birth families were all stupid," said Ender, "and they were terrified of us. Yours was no different. They could hardly bear to touch you, they thought you were a monster, you told us that yourself."

"Well what's this family," Sergeant whispered fiercely. "Father is a talking mountain in the cargo hold, and Mother is a hologram who says the same things over and over and over and over and over and over and over."

[Bean lay back and stared at the ceiling.](#) Then he closed his eyes because he couldn't see the ceiling anyway. Closing his eyes squeezed out the tears that had filled them.

"It was a terrible choice," said Bean softly. "No matter what we did it would be wrong. We didn't talk to you about it because you didn't have enough experience of life to make an intelligent choice. You three were doomed to die by age twenty or so. We thought we'd find a cure quickly -- ten years, twenty -- and you could come back to Earth while you were still young enough to have your whole lives ahead of you." Bean sighed. It took great effort to expel the air from his lungs. "When Petra and I conceived you, it was because we believed there was a scientist who could sort things out. He was the one who turned Anton's Key in me in the first place. The one who killed all my fellow experiments. We never meant to do this to you. But it was done, and all we could think to do was whatever it took to give you a real life."

"Your life is real," said Ender. "I'd be content with a life like yours."



"I'm living in a box that I can never leave," said Bean, clenching his fists. He had never meant to say anything like this to them. The humiliation of his own self-pity was unbearable to him, but they had to understand that he was right to do whatever it took to keep them from getting cheated the way he had been. "If you spend the first five or ten years of your life in space like this, so what? As long as it gives you the next ninety years -- and children who will have their century, and grandchildren. I'll never see any such thing -- but you will."

"No we won't," whispered Sergeant. "There is no cure. We're a new species that has a life span of twenty-two years, apparently, as long as we spend our last five years at ten percent gravity."

"So why do you want to kill me?" asked Bean. "Isn't my life short enough for you?"

In answer, Sergeant clung to Bean's sleeve and cried. As he did, Ender and Carlotta held each other's hands and watched. What they were feeling, Bean didn't know. He wasn't even sure what Sergeant was crying for. He didn't understand anybody and he never had. He was no Ender Wiggin.

Bean tracked him now and then, checking in with the computer nets through the ansible, and as far as he could tell, Ender Wiggin wasn't having much of a life, either. Unmarried, childless, flying from world to world, staying nowhere very long, and then getting back to lightspeed so he stayed young while the human race aged.

Just like me. Ender Wiggin and I have made the same choice, to stay aloof from humanity.

Why Ender Wiggin was hiding from life, Bean could not guess. Bean had had his brief sweet marriage with Petra. Bean had these miserable, beautiful, impossible children and Ender Wiggin had nothing.

Mine is a good life, thought Bean, and I don't want it to end. I'm afraid of what will happen to this children when I'm gone. I can't leave them now and I have no choice. I love them more than I can bear and I can't save them. They're unhappy and I can't fix it. That's why I'm crying.

—*shadows-in-flight*—

CHAPTER 4



Carlotta was doing gravity calibrations in the field footing at the very back of the ship when Ender came in to life support, which was just above where she was working. Or just forward of it, depending on how you thought of the ship.

"Sergeant needs a dog," said Carlotta.

Ender jumped. "What are you doing down here?"

"My work," said Carlotta. "What are you doing?"

"Samples," said Ender. "We've been working with viruses for gene splices for a long time, but there's some productive work being done with bacterial latency and chemical triggers."

He sounded so happy.

"I was hoping you could help me come up with something that will help Sergeant bear his life. He suffers more from loneliness than you and I do. He's more like Father."

"The Giant and Sergeant? I never thought of that, but I think you might be right. Sergeant needs to be a street kid in constant danger of starving or getting killed. That would occupy him nicely. So what you really want is not a dog for Sergeant. More like a sabertooth tiger. Something that is stalking him constantly so that he can devote himself to fighting off genuine threats so he doesn't have to keep making them up."

"I was thinking more along the lines of a companion that extends his life beyond the boundaries of the ship."

"A dog on another world?" asked Ender. "There are bio-research labs on several worlds that are studying various xenofauna. I assume you're suggesting that I invent some kind of excuse for this to be a project of mine, which I would talk about with believable enthusiasm, so that Sergeant will think he's sneaking behind my back to get control of the creature and divert it to his own purposes."

"Something like that," said Carlotta.



Ender said nothing more. He closed the lid on his last sample and left life support.

Carlotta was already finished with her readings. As usual, everything was working fine.

What routine, boring, lonely job was next? She hadn't checked the tracking software for a while. Weeks? Days? At least days. She closed up the floor panel over the gravitational field sensors and made her way to the elevator shaft.

When she first stepped onto the platform, it was a small floor under her feet. But as it moved upward, it passed into a flux zone, where she felt herself falling in every direction. She was used to it, though it still gave her a bit of an adrenaline rush as her body felt the usual momentary panic. The

limbic node deep in her brain didn't understand that she no longer lived in a tree, no longer had to panic when she felt herself to be falling.

Ender was in the lower lab when she got there. It took her a couple of steps to move fully into the zone of Earth-normal gravity that the ship maintained in the forward compartments, where Father couldn't go anyway. Ender didn't look up -- he was busy inserting his samples into various bits of equipment, some of them for freezing, some to be worked with right away. He had no time for her.

Wordlessly she passed Ender and climbed up into the upper lab. She sat down at the terminal for the tracking computer, brought up the holocharts, and began going through all the star systems that fell anywhere near their future path, starting with the stars they were just about to pass and working forward. The computer was looking for the arrangement of mass in each system in order to estimate how the gravitator would have to adjust its lensing.

It was on the fortieth star she looked at -- one that was still several months in their future, but would come fairly near to them -- that the computer pointed out an anomaly. There was an object that was being tracked as belonging to that star system, but according to the computer report, the object's mass kept changing.

That was impossible, of course, a mere artifact of the data. The mass didn't change, that's simply how it was reported. What was actually happening was that the object was not moving on a path that was predictable in relation with the known masses of the star and its larger planets. So the software kept adjusting the estimate of the object's mass to make it conform to its most recent movements.

It wasn't an "object" at all. It was using its own power to move on a path it chose itself, independent of the gravity of the star and its planets.

Carlotta told the software to regard the object as a starship.

Immediately she got a very different report of its past movements. The ship now had a constant mass -- more than a thousand times more massive than

the Herodotus. But the trajectory now made perfect sense. The ship was slowing down as it entered the star system. It was heading, not toward the star, but toward a rocky planet in the goldilocks zone.

But Carlotta didn't care much about the planet. Planets were of no use to them because Father couldn't stand even half a gee, let alone 1.2. The fact that the alien ship was approaching it suggested that the atmosphere was attractive to whatever species the ship belonged to. But what mattered to Herodotus was the existence of the alien ship.

The human race had encountered only one alien species, ever, and had fought a war of extinction with them. According to a story told by the writer of The Hive Queen under the pseudonym "Speaker for the Dead," the Formics had not meant to wipe out the human race at all. But Carlotta wasn't buying it -- it was easy to impute benign motives to an alien species that no longer existed.

The trouble was, it was too late to avoid meeting the species. No matter what the Herodotus did, it would be detected -- and its plasma path could be followed back till it disappeared. And since their flight had been straight as an arrow since they reached near-light-speed, all the aliens would have to do to find the human home world was keep on going straight along the path marked by the Herodotus's plasma emission trail even after the trail itself petered out.

It would be far more useful to slow down and stop, not turn, so that they could discover as much as possible about this alien ship and its inhabitants. Using the ansible, they could report every speck of information they found - - right up to the moment when the aliens destroyed them. The human race would then have time to make whatever preparations might be possible to meet these aliens when they followed the Herodotus's trail back to Earth.

And it would give Sergeant something useful to occupy his time instead of plotting ways to kill Father -- or whoever his enemy might be today.

Carlotta sent a signal to Ender and Sergeant. Come with me to talk to the Giant. Something important has come up. Then she copied the pertinent

charts and reports to Father's holotop.

—*shadows-in-flight*—

CHAPTER 5



"Of course we're going to stop and try to communicate with them," said Cincinnatus. "We have no other choice. We can't leave a potential threat behind us without investigating it."

The others nodded. A group this bright didn't need discussion when the options were obvious.

"There's no reason for Ender to stop working on the genetics problem," said the Giant. "We're pursuing an interesting path that involves bacterial latency. Carlotta can manage deceleration, approach, and communications."

Cincinnatus felt his normal despair. As usual, no one could think of anything for him to do.

Carlotta, bless her little heart, took pity on him. He hated that. He didn't need to have his shame put into words. "What about Sergeant?"

The Giant looked at her as if she were an idiot. "He's going to arm the Herodotus so we're ready to turn this alien ship into dust if the need arises."

Just like that. For the first time in his life, Cincinnatus mattered. The Giant had a use for him.

Ender was skeptical, of course. "We don't want to go in guns blazing."

The Giant sighed, and now Ender got the are-you-really-this-dim look. "Andrew, sometimes I think you forget that each of you is exactly as intelligent as the others. Cincinnatus isn't going to use any weapons against an enemy whose capabilities we don't yet know. And even when we know them, he won't initiate hostilities. We don't need a war. We need an assessment. But if they want a fight, we have to be so ready that only a vastly superior technology could possibly kill or capture us."

Cincinnatus didn't have to say a thing. He had a job. An important one. And more to the point, he had the Giant's trust.

Enough trust that over the next few weeks, the Giant studied all of Cincinnatus's proposals and, with a few pointers and suggestions, approved them. Carlotta helped him put a small-scale M.D. field on the front of the Puppy, to act as a shield and, potentially, a weapon. Cincinnatus put in the hours of delicate work to weaponize the small atmospheric probes, designing them to cause several different levels of damage. It was vital to have an arsenal that could respond at the appropriate level. Total destruction was the least desirable option. How many alien races were they likely to meet on this voyage? It would be very nice to have something left to study, even if they had to kill everybody. Turning the aliens and their ship into a cloud of undifferentiated atoms was only the very last resort.

To Cincinnatus, it was as clear an assignment as he could imagine. You are the soldier, the Giant was saying to him. You will follow my path to war. I have set down my military life; I give it to you.

All his life Cincinnatus had relentlessly studied war, everything about war, from weaponry to tactics, from strategy to logistics. Every period, every battle, every general good or bad. He saw everything through the lens of war. He made himself ready.

And what did he get for it? The nickname "Sergeant," as if he were a mere noncom, never to be a commander.

The bitterness quickly faded, however, and now he had to face the realization that all he felt, day after day, was a growing dread. No, not dread anymore. Raw fear, that's what he felt. All his military study and planning had been theoretical or historical. This was real.

He began to have nightmares. Vids of the Formics replayed in his mind, always tearing apart Ender or Carlotta or the Giant, as they screamed, "Sergeant! Help me! Save me, Sergeant!" And in the nightmare, he stood there with powerful weapons in his hands and he could not aim them, could not fire, could only stand and watch his family die.

The three of them bunked together in the upper lab, but when the nightmares began, Cincinnatus began sleeping in the Puppy, or in some other place in the ship, wherever he could curl up and catch a few hours of sleep before the dreams began.

So it was that when they began to get visuals from the tiny drones they sent on ahead of the Herodotus, Cincinnatus was already so terrified he could hardly breathe. He could not believe the others didn't notice. But they didn't. They kept deferring to him as they discussed possible strategies. And when the visuals began coming back and the sheer size of the monster starship became clear to them, they openly showed their fear -- nervous laughter, lame jokes, outright declarations of awe and dread. But Cincinnatus showed them nothing, and they continued to rely on him.



The odd thing was that even though he was absolutely consumed with his own fear, the analytical part of Cincinnatus's brain didn't freeze up at all.

"I see no sign that the bogey has spotted our drones," Cincinnatus said. "In fact, I see no sign that they're doing any kind of recon on the planet, even though they're in geosynchronous orbit around it."

"Maybe they have instruments that don't have to penetrate the atmosphere," said Carlotta. "We do, after all."

"We can determine the oxygen content and so we know that it's a plant-dominated world," said Cincinnatus. "But if we were going to settle there, we'd be sending drones to pick up samples of the biota to determine the chemistry of life to see if it's compatible with us."

The Giant hummed a long low "Ummmmmm" and said, "The Formics didn't have to do that because when they colonized, they had this gas that broke down all life-forms into a protoplasmic goo. Their strategy was to get rid of the local flora and fauna and replace it with fast-growing flora of their own."

"So when the Formics came to Earth, they didn't probe or test at all?" asked Carlotta.

"Not as far as we could tell," said Cincinnatus. "I've been going over all that during the past couple of months and the Formics didn't do any of the things we would have expected. Now we understand why, but at the time we had no idea of their mission."

"So are you saying that these aliens are like the Formics?" asked Carlotta.

"No," said Cincinnatus. "What I think is that this ship isn't like the Formics. It is the Formics."

Carlotta and Ender were so surprised that Ender laughed and Carlotta even let out a single derisive hoot. "The Formics are all dead."

"It's got the Formic look. No attempt at grace or proportion. The colony expedition they sent to Earth was a new model. Smaller and leaner than this one. Also faster. Not as close to lightspeed as the Herodotus, but near enough to get relativistic benefits. But this ship -- do you see anything that could possibly cope with relativistic speeds?"

Carlotta blushed. "No. This is a slow ship."

"Well, what do we do? If it's really a Formic ship," said Carlotta, "we can't exactly call it with our ID code."

"I think there's no choice but to send an ambassador," said the Giant. "Or, if you prefer more accurate terminology, a spy."

"Who?" asked Ender.

"Well, I can't fit in the Puppy," said the Giant. "So I think it has to be one of you."

"The Puppy can't leave the Herodotus," said Carlotta.

"It can if I tell it to," said Bean.

"I'll go," said Cincinnatus. "I'm the most prepared if things go wrong, and I'm the most expendable if things go really wrong."



"Circle it and see what response you get," The Giant said. "Land on the surface. If you can open a door, open it and invite inspection. Show your shape to them. Get out of there if it seems dangerous. Opening a door is all. Don't go inside."

"I won't go inside," said Cincinnatus.

"He'll go inside," said Ender. "He practically has to. This is Sergeant we're talking about."

—*shadows-in-flight*—

CHAPTER 6



Ender knew that Sergeant was piloting the Puppy around the alien spaceship. For a while he had even kept the image of it in a small corner of his holodisplay. But it kept distracting him from the genetic models that had just come through from a research team that they had funded through one of their foundations.

Alien ship -- interesting. Maybe vital for the survival of the human race. Happening in real time, so that consequences of a mistake would be immediate and irreversible.

But what Ender was looking at was also immediate. He was looking at failure and death.

There was simply no way to reverse the portion of Anton's Key that caused the Giant and his children to keep growing at a steady pace throughout their lives without also reversing the process that allowed the continuous formation of new neural cells and structures at an accelerated pace.

Even if they could work out a mechanism for simultaneously changing the genetic molecules in every cell in their bodies -- which was by no means likely, not without damage and loss -- there was no simple one-step change in their DNA that would stop the giantism without also making them stupid.

Not stupid. Normal. But that was the unbearable alternative. Turning Anton's Key was the point of the experiment that had created the Giant and his murdered siblings in Volescu's illegal laboratory twenty-two years ago. But you could not turn or unturn only a portion of it. The segments of protein doing the two primary jobs could not be separated.



Ender swapped displays and there was the Puppy, attached to the surface of the alien ship near an apparent access point. Ender zoomed in and now the hovering drone was showing Sergeant emerging from the Puppy in a pressure suit. He was adhering to the surface using magnetics rather than the mini-gravitator onboard the Puppy, because they didn't want to risk lensing the gravity on the other side of the ship's surface -- who knew what damage or chaos that might cause? Magnetics were awkward to work with and made movement slow and ponderous, but they would cause no damage.

Don't bother being so cautious, Sergeant, he wanted to say. If you lose your life now, it won't be much of a loss. It's not as if you have much of a life ahead of you, anyway.

Carlotta had located a door. The Puppy approached it.

"Should I knock?" asked Sergeant. "It only opens from the inside."

"Any kind of lock or keypad or palmpad?" asked Carlotta.

"If it's Formics, they wouldn't need one," said Ender. "The Hive Queen would know they wanted to come in and make another worker open it from the inside."

"If I breach the seal," said Sergeant, "it might cause serious damage inside."

"It's a poor design that doesn't have an airlock," said Carlotta.

"The inside door might be open," said Sergeant. "We don't know what's going on in there."

"There might be fifty heavily armed soldiers waiting to blast you when you get the door open," said Ender.

But Sergeant was already getting a pry bar from the Puppy's exterior tool rack. After a few minutes: "There's a little give, but I think the door isn't hinged. I think it slides."

Ender laughed. "Come on, you two. Think like a Formic! You're trying to open the door as if it were designed for a human to pass through. Formic tunnels are low and wide."

Sergeant muttered a few unpleasant words and then began to rerig the Puppy to pull the door in the direction the Formics would have thought of as down.

It was slow, pulling against the drag of interior machinery, but it slid open. There was an airlock, and an inner door. Sergeant closed the outer door, and opened the inner one.

The visual from Sergeant's helmet showed almost nothing, even when Carlotta enlarged it to fill the holospace.

"Switch on a light," said Ender.

"Light forward," said Sergeant, sounding annoyed. Didn't he like Ender making obvious suggestions? Poor boy.

The visual now showed a low tunnel, with tunnels branching off in a couple of directions.

"Nobody there to greet you," said Carlotta. "They're all dead."

"Or they laid a trap," said Ender. "Go on in and see."

Sergeant reacted to Ender's taunt by blanking the display.

"Hey!" protested Carlotta.

"I warned you, Ender," said the Giant.

"Why punish me?" demanded Carlotta.

"Come on," said Ender. "They're dead, there's no danger."

"Wrong," said the Giant.



The display came back on. It was obvious that Sergeant had indeed slid into the low tunnel. It was tall enough that Sergeant was probably sitting up.

"There was motion a moment ago," said the Giant. "While you were wasting my time with your immature behavior."

"Ender's immature behavior," said Carlotta.

"Which you just matched," said the Giant. "Sergeant is in a dangerous place and you're wasting --"

Motion in the display. Lots of motion. A dozen small creatures emerging from side tunnels and beelining toward Sergeant.

"Get out of there," said the Giant.

At once the display jiggled and swiveled nauseatingly as Sergeant threw himself feetfirst back into the airlock.

The airlock door was half closed when two of the small creatures launched themselves through the door. One went for Sergeant's body, one for his helmet. It blocked at least one of the viewers, so the image lost its depth and went flat.

"Open the airlock!" shouted Carlotta. Sergeant apparently had the presence of mind to remember where the lever was that controlled the outer door.

"Catch one and hold on to it," said Ender.

"You're a cold marubo," said Carlotta, not admiringly. But it was the right thing to do, and they both knew it.

The creature partially blocking the helmet's viewers blew away.

"I've got the one on my body," said Sergeant. "It's trying to eat through my suit."

"Get rid of it," said the Giant urgently.

"No, I'm holding it by the back now, away from me. It's just wriggling now. It's not sentient."

"How do you know?" asked the Giant.

"Because it's stupid," said Sergeant. "Quick but dumb, like a crab maybe."

"Get back to the Puppy," said the Giant.

"It's an air-breather," said the Sergeant. "Or maybe it just likes atmospheric pressure, because it finally stopped wriggling."

"Flash frozen," said Ender. "Good way to gather specimens. Except for the destruction of every cell in its body."

"We'll still be able to tell a lot about it," said Carlotta. "When he gets it back here."

"You mean I'll be able to tell a lot about it," said Ender.

"Are you going to keep what you find a secret from us?" asked Sergeant.
"Or will we all know?"

"He's just being a brat," said Carlotta. "I don't know what's got into him."

"He's jealous because I got to do something important for once," said Sergeant.

The words stung because they were more than a little bit true.

"It looks to me," said Ender, "as if the rats have taken over the ship."

"Oh, that's too much," said Carlotta, standing up and facing Ender in a rage.
"Sergeant risked his life while you sat here all cozy and --"

"Carlotta, stand down," said the Giant's voice -- over the intercom this time, instead of coming through the computer. "Ender wasn't talking about our ship."

Carlotta instantly understood. "So you think that creature Sergeant caught is just ... vermin?"

"Maybe it had some other function before," said Ender, "or they wouldn't have had them on their ship. But they're vermin now."

"Sergeant will be back in a minute," the Giant said, "and we have to take this creature apart and analyze it. And keep this in mind, please: Somebody or something on that ship parked it in geosynchronous orbit. Until we know who or what did that, we have no idea what kind of danger or opportunity we've run into here."

CHAPTER 7



While Ender analyzed the half-exploded corpse of the alien rat-crab, Carlotta and Cincinnatus made repeated trips to the alien vessel in the Puppy. They did not return to the airlock. Instead, with Sergeant to protect her in case the ship started trying to defend itself and repel their tiny invasion, Carlotta opened all the maintenance hatches and took measurements and charted wiring and did whatever other engineering tasks were within her reach to figure out how the ship worked and, if possible, get some idea of what awaited them inside.

Both projects were getting fascinating results; Bean checked in on them every hour or so, and kept the audio channels on so that if they said

anything, he could respond, just so they thought he was looking over their shoulders.

He wasn't, though. He had a project of his own. He was using the Herodotus's instruments and drones to probe the planet they were orbiting.

After two days of study, Ender had his report ready, and so did Carlotta and Sergeant. They gathered in the cargo hold for show and tell.

Ender began it.

"This is a Formic ship," he said. "The proteins in the rat-crab are the complete set of Formic-world proteins, with no extras.

"But here's the odd thing. The DNA is almost identical to the Formics' own genome as gathered and recorded from the many corpses after the war. There are key differences, but they're localized. It's as if the Formics went for a kind of perverse neoteny -- these rat-crabs seem to be a deliberate throwback to an earlier stage in Formic evolution, with these savage claws spliced on, and a hard carapace, which is only vestigial in the adult Formics."

Carlotta and Sergeant understood the implications at once. "So the Hive Queens can modify their own offspring," said Sergeant. "They decided that some of their babies would be those little monsters."

"I doubt they thought of them as their children anymore, if they ever did," said Carlotta. "When you have babies by the thousand, I bet the Hive Queens had no qualms about regarding a few of them as animals."

"There must be some limiting factor to their population," said Sergeant. "Or so the Hive Queen that created them intended. It might not have been the Hive Queen of this colony. They might have been developed long before this voyage and then reproduced naturally. The Formics might not even have remembered that these rat-crabs began as their kin."

"Do you think they're edible?" asked Carlotta. "Not to us, but ..."

"They're meaty," said Ender. "You're right, this might be dinner on the hoof."

"What kills them?" asked Sergeant.

"Anything. Their carapace doesn't protect them from anything stronger than the teeth of smaller animals. They could crush each other, and they could be mashed by a fist-sized rock. So you tell us what weapons we should use to keep them at bay."

Sergeant nodded. "No bullets, not on a ship. I wondered if we could slow them down with a sedative spray."

"I'd have to have a living specimen to see what worked on them," said Ender. "But there are sedatives that have been used on specimens of Formic-world fauna from several of the colony worlds. I could whip up a cocktail of seds that have no effect on humans."

"I just don't want to go in killing them wholesale," said Sergeant. "Now that we know they're Formic-derived, it's not impossible that they're actually the ones piloting the ship."

"Brain's too small," said Ender.

"But they might have queens," said Sergeant. "Or some kind of collective mind that's smarter than any individual. I just don't think we should go in killing. I keep thinking of the old vids of the Formics during the Scouring of China, that vile fog that reduced living creatures to pools and piles of protoplasmic goo."

"So let's have several sedatives ready that can be delivered as a fog," said Bean. "And a good solid backup plan. An acid spray, for instance. Even if they're sentient or semisentient, if they come at us to kill us, we hit them first and leave them dead."

"Carlotta?" he said. "What do we know about their ship?"

"It's definitely older tech. And it's Formic technology -- no writing, but some major color coding. Lots of little motors, which is why they need to have all these maintenance hatches. Of course they had to eliminate a lot of doorage in later ships when they got up to relativistic speeds. This design wouldn't do at all.

"I think they build the ship in space by attaching everything to an asteroid they sculpted into the shape we're seeing. Probably most of the metal in the ship's frame and hull came from the iron and nickel and such in the rest of the asteroid. But it's not the impermeable alloy they used in the ships that invaded Earth back in the 2100s."

"They didn't need it yet," said Sergeant. "At only ten percent lightspeed."

This ark showed that Formics sent out their colony ships with no defenses against attack, only a primitive collision shielding at the front. The Formics had turned out to be devastatingly formidable in war, but war was almost certainly not their intention when they came to Earth.

"Nice to know," said Bean. "Fortunately, the argument never mattered anyway. What else?"

"The huge pillars are structural -- the whole strength of the ship is vertical rising out of the rock, like a skyscraper. But they're also hollow. Rocket engines, and they carry fuel. Not radioactive, lots of carbon traces. It must be a very efficient fuel because even if the rock contains huge fuel reservoirs, it's not as if they can ever take this thing down to a planetary surface to process whatever carbon-based fuel source they use."

"They don't need much fuel," said Bean. "It's a generation ship, so they don't have to accelerate much. Very slow burn until they reach cruising speed, and then nothing until deceleration."

"No way to guess how much fuel they have left. This planet might be their last hope, or just a casual visit to see if it might do. The machinery I looked at was aging but it works fine."

"Aging like a thousand years?" asked Bean.



"No. More like a hundred years. I think everything's been replaced again and again during the voyage. Plenty of indications that there's been a lot of servicing over the years. But none recently."

"Good work, all of you," said Bean. "I know there's a lot more in your reports, and I've scanned your data as you collected it. I think we have all the useful information we're going to get from the outside, and from that lump of rab that Sergeant brought back."

"Rab," said Sergeant, giggling a little. "Rat-crab."

"Half a rabbit," said Carlotta.

"'Rab' it is," said Ender. "Until they tell us what they call themselves."

"Now, when you go inside," said Bean, "you have to remember that Formic-based life-forms probably all have some degree of mental communication. Even if it's just a sharing of impulses and desires and warnings, they can tell each other what they need to know. So if any of the rabs notices you, they all know you're there. They might be smart enough to set ambushes. You have to be alert. And if it gets dangerous, get out. You are not replaceable. Do you understand me?"

Sergeant nodded, Carlotta gulped, and Ender looked bored.

"Ender," said Bean, "it looks to me as if you think you're not going in with the others."

That woke him up. "Me?"

"Three," said Bean. "I'd go myself, but you know my limitations."

"But I'm the biology guy," said Ender.

"Precisely why you need to go," said Bean. "Three for defense is the minimum anyway, but if you're there, you can learn things on the spot instead of waiting for them to bring things back for you to study."

"But I'm -- I'm not trained for --"

Sergeant looked at him with contempt. "You think you're above getting your hands dirty."

"I was up to my elbows in rat-crab blood," said Ender.

"He didn't mean literally 'dirty,'" said Carlotta. "You think we're expendable and you're the irreplaceable one."

"Nobody's expendable," said Ender. "I just won't be much help."

"You beat me," said Sergeant dryly. "Don't pretend you're helpless."

"He's scared," said Bean. "That's all."

"I'm not a coward," said Ender coldly.

"We're all scared," said Carlotta.

"Terrified," said Sergeant. "When those rab bastards came at me I pooped my pressure suit. Nobody in his right mind isn't scared going into unknown territory facing fast-moving enemies and more potential foes that you don't even know about."

"So why are we doing it?" asked Ender. "The ship is dead, it's not going to follow our trail back to Earth. The human race isn't in danger. Let's just make our report and move on."

The others didn't even bother to answer such a ridiculous suggestion.

—*shadows-in-flight*—

CHAPTER 8



"I think we're ready, Father," said Cincinnatus.

The Giant's voice came over the cabin speakers. "Attach yourself to a wall and strap in. I don't want to have to worry about you bouncing around in there while I'm maneuvering."

"So you're planning to show off what a hotshot pilot you are?" asked Ender. Cincinnatus made sure that they were all leaning against the wall of the cabin as the walls extended grips to hold them firmly. The lander was designed to carry cargo -- there were no seats. The walls were designed to restrain whatever was placed up against them, whether people or cargo.

"Eh," said the Giant. "It's been a while since I had a chance to fly a sweet machine like the Hound."

After the experience of bumping around in the Puppy, Cincinnatus was duly impressed with the Giant's piloting skills. The Hound detached and puffed free of the Herodotus, and then suddenly it was moving forward. There were no lurches, no abrupt changes of direction. One smooth parabola, a marvel of efficiency, and they were positioned over the still-open airlock of the ark.

From the belly of the Hound, a self-shaping tube extended and created a seal against the surface of the ark, completely surrounding the airlock door. The children watched on a holodisplay at the front of the cabin. They felt the sudden gust as air from the Hound puffed into the tube and the open airlock.

"We're connected," said the Giant. "When you get the inner airlock door open, command passes to Cincinnatus."

Carlotta dropped down the tube first and made sure the outer airlock could close behind them, in case some accident detached the tube from the ark's surface. She closed it and reopened it twice. Then she called, and Cincinnatus and Ender dropped down the tube into the airlock, carrying their shotguns, with the spray packs on their backs and the nozzles attached to their wrists.

Cincinnatus switched on his helmet's display, and after a moment's recon, the helmet computer began to outline and label all the key features of the airlock. That was the easy part -- Carlotta had already programmed in all the information from Cincinnatus's first foray. As they went farther into the ark, Carlotta would orally label whatever she saw that needed labeling, so that the helmets could create maps on the fly, and they would all see the same names for everything.

Cincinnatus located himself in front of the inner airlock door. He half expected a couple of dozen rabs to be positioned all around the door, waiting to pounce the moment it opened. That's what he would have done, if he'd been in charge of defending the ark.

The door slid open.

Nothing moved.

Cincinnatus slipped into the corridor, orienting himself to stand upright in the narrow space. To Formics, he would seem to be sideways, standing on the wall. Not that it made any difference. He tested the feel of his magnetics and murmured, "Mags five."

The others gave the same command, tuning their boots to stick even less tightly to the "floor."

When Cincinnatus came here before, he had seen rabs almost immediately. Did it mean anything that they weren't showing up yet?

The Giant's voice murmured in his ear. "I assumed that the ecotat would have days the same length as the Formic home world. If your previous entry was at Formic noon, you're now coming in at midnight."

"If they're nocturnal then this is day, same benefit," said Ender softly.

"If they're dusk feeders then this is dawn," said Cincinnatus. "And we're iced."

"I don't see any yet," said Carlotta.

They passed under two upward passages but Carlotta didn't tell them to go up. It wasn't until they came to a large opening to the left that she said, "This is one of the standpipes."

"Aren't those rocket tubes inside?" asked Cincinnatus.

"But all the controls run up between the standpipe and the hull," said Carlotta. "Let's at least take a look."

The passage was sealed off from the perimeter corridor -- an airtight seal, so that a breach in the hull would not suck air from the passages that ran the length of the ship. It opened with a lever like the one at the airlock.

Inside, there was a crescent-shaped space. The desiccated corpses of four Formic workers were discarded like broken dolls, some of their limbs broken off and randomly strewn. Cincinnatus couldn't help a momentary recoil.



"I don't think they died here," said Ender almost at once. "They were probably thrust down here by the force of deceleration as the ark approached the planet. They were already completely dried up by then -- all this breakage came recently, and they've been dead for a century."

"So they died when the Hive Queen died," said Cincinnatus.

"Presumably," said Ender. "That's what Formics do."

"The rabs didn't eat them," said Carlotta.

"Guess they can't work the levers," said Cincinnatus.

"Not smart enough to understand them," said Ender. "They're strong and dextrous enough."

The whole length of this standpipe had apparently been sealed off from the rabs. They ran into no more corpses, and no hostiles, either. But when they came out of the standpipe passage into another perimeter corridor, it was a different story.

The air was filled with debris, floating like dustmotes in a beam of light. It took a moment to determine that they were body parts. The helmet's heat sensor showed Cincinnatus that there might be living creatures beyond the curve of the corridor in both directions, but none within line of sight.

Ender came through and began picking pieces out of the air to examine them.

"Bits of rab bodies, but also bits of other life-forms. Wings like insects. Really big ones. Lots of little skeletal bits, skin I don't recognize."

"En, stay close; Lot, can you tether him so you can tug him? Don't want any gaps opening."



He knew that Carlotta would obey, hooking a three-meter cable from herbelt to Ender's. He had no time to check, anyway, because rabs now came hurtling through the debris, rebounding from wall to floor to ceiling,

scattering a hailstorm of bones and shells and wings and skin bits as they came. It was like intertwining tornadoes coming up the corridor.

Up the corridor. All at once Cincinnatus understood how useful Ender Wiggin's "enemy's gate is down" doctrine could be. Cincinnatus dropped onto his back and then braced his feet against the walls, the narrow way, and shot the spray down between his legs.

The spray -- if it worked on rabs at all -- was supposed to be very quick. It shot out from the nozzle in a fine aerosol fog, but at such speed that it filled the corridor for at least ten meters ahead. The smell was very faint.

Naturally, the sedative fog did nothing to slow the rabs' forward progress; Cincinnatus had his shotgun in firing position at once, aiming downward between his legs, as he waited to see what condition the rabs were in when they arrived.

They were still bouncing off the walls, but now he could see it wasn't a controlled movement. Instead of always landing on legs, any part of their bodies might hit the wall, and they tumbled end over end instead of jaws first.

"Spray's working," said Cincinnatus.

He reoriented himself so he could walk in the corridor again. Drugged-up rabs from Ender's direction pelted him in the back as rabs hit him in the front. The suits absorbed much of the shock, but not all of it. Not enough of it. There'd be some bruising, and when they hit Cincinnatus's facemask, the impact rocked his head back. He moved forward briskly, firing off a short burst of spray every ten meters or so. Ender didn't fire at all -- they were moving into the residue of Cincinnatus's spray, leaving Ender's original burst of fog to guard the passage behind them.

Cincinnatus passed a large airtight door on the right, leading toward the center of the ark. He made a quiet bet that Carlotta would choose this one, because it wasn't open and therefore might be rab-free. Sure enough, she levered it open and there was no debris inside, though a good amount of it began osmoting through, along with fog.

He saw Ender move through the door and Carlotta closed it. The amount of debris that had come through was relatively slight, and Cincinnatus led the way along this corridor at a brisk walk.

After a short way, the corridor opened out into a huge sandwichlike chamber. Cincinnatus forced his mind to reorient to the way Formics would have seen the room. The space between floor and ceiling was no more than a meter, but both surfaces undulated. And both surfaces were pocked with indentations. Deep ones.

"Sleeping quarters," Carlotta guessed.

She had to be right. Each indentation was deep enough for a Formic worker to crawl in to sleep. The soft, organic surface would protect them from the stress of acceleration. Cincinnatus reached a hand inside and pressed against it. It broke. Once it might have been resilient, but it had dried out. Probably the Formics moistened their own cells when they slept, to keep them supple. But now the walls crumbled into flakes when pressed. Some of the cells had Formic corpses in them. Most were empty.

They found themselves in a long corridor running in the direction of the axis of the ship. This time the tube had tracks on what the Formics would consider to be the floor and the ceiling. It made sense -- a cart would never stay on tracks that only ran along the floor. Something was hauled along these tracks -- and regularly. Cincinnatus saw that the metal tracks were shiny with constant use.

"The trains are still running," Carlotta said.

As if on cue, Ender gave warning from the rear. "Press into the corners, here comes the train."

Cincinnatus dropped to the "floor" he had been walking on and stretched himself out. Moments later, a tram moved along the tracks, tension bars holding the wheels to both sets of tracks. The body of the tram was like a chicken-wire cage, bulging with some kind of organic material. Plants? No, they were writhing, pushing against the wire. But nothing was getting out.

Not rabs, not even rablike. These were soft-bodied creatures, more like slugs, but with wider bodies and a kind of hair. Or cilia. Caterpillars? Analogies to Earth fauna would probably be unproductive and misleading. Ender's job, anyway.

Cincinnatus followed the tram but did not try to keep up with it. The thing was automatic. The question was whether it would run in a loop or reverse direction and come back this way for another load.

It didn't come back, and after a while Cincinnatus came to a place where the tracks curved inward toward the center. Cincinnatus stayed with them, of course, and came up against the back of the tram, which was stopped exactly over an opening. A sickening odor was coming from the space where the opening led.

Through the chicken wire Cincinnatus could see that something was cleaning out the cage.

It was a rab.

But it ate nothing, just scraped out the last of the clinging slugs. Then the opening closed, the tube was dark again except for the light from Cincinnatus's helmet, and the tram moved along in the same direction instead of backtracking. So it was a loop. And the load had been delivered.

Cincinnatus gathered them around the place where the opening had been. There was no visible lever to open the door.

"What now, Lot?" asked Cincinnatus. "There was at least one rab on the other side, but it didn't eat the slugs, just pulled them out."

"Did it look like that's what the grabbing claw was designed for?" asked Ender.

"Not our concern right now, but ... yes," said Cincinnatus. "Could be that this is the task the rabs were actually designed for."

"Meanwhile," said Carlotta, "I think we can trip the signal that tells the system that a tram is here, so the door will open. It's mechanical. Look, the wheel passes over a treadle and the pressure trips a switch." She looked at Cincinnatus. "Ready for me to open it?"



"Fog ready," Cincinnatus said to Ender. They got their nozzles into position to spray into the opening. "I warn you, it stinks in there," said Cincinnatus. "Now, Lot."

The door opened.

The stink hit them right away and got worse as they moved into the room, which was humid and hot.

A half-dozen rabs were gathered nearby, but they were busy herding the slugs along a metal ramp that sloped gently upward. One of them noticed Cincinnatus and turned to face him, but it didn't leap to the attack. On the contrary, it simply went back and flipped the lever that closed the door again. But by now Cincinnatus, Carlotta, and Ender were all inside the chamber.

No, not chamber. Cavern. Unlike the Formic workers' dormitory, this space had much higher ceilings -- several meters, maybe five. But rising to it or descending from it like stalagmites and stalactites was a lot more of that organic material, only now it was spongy and resilient, and the indentations were far narrower.



The rabs pushed the slugs up the ramp toward the center of the cavern. There was a platform there, with a soft light aimed at it from several directions. The whole room was centered on that space.

The smell got worse the farther they moved along the ramp, but they also got more used to it. The helmets also started cleaning the air inside the visor, which helped a little.

The slugs stuck to the ramp and the rabs clung to the edges of the ramp. The mags kept the children standing upright.

"It's like a throne room," said Carlotta.

"These are egg chambers," said Ender. "This is the Hive Queen's chamber."

But there were no eggs. Instead, the closer they got to the platform at the center, the more the egg chambers were filled with a brown goo with streaks of green. Putrefaction. The slime of decay.

At the end of the ramp, the slugs were pushed onto the platform. But since it was already piled high with slugs, mostly dead ones, the new ones toppled off to the sides, plopping into the slime below the ramp. The slugs swam like eels, but there was nowhere to go, except slime-filled egg chambers.



"They're feeding the Queen," said Ender. "Only she isn't here."

By now Cincinnatus had reached the platform. He waded through slugs toward the center. At the focal point of the beams of light, a low wall kept

any of the slugs from getting into a three-meter-wide circle in the exact center.

Within that wall, sprawled and curled across more of the organic material, was the gray, dried-up corpse of a winged creature that had to be at least the size of the Giant.

"She's here all right," said Cincinnatus. "But she isn't hungry."

—*shadows-in-flight*—

CHAPTER 9



Carlotta hated the Hive Queen, dead as she was. The Hive Queens' ability to communicate so perfectly with their daughters meant that there was no need for any kind of communications system. The Hive Queen could pilot the ship from anywhere. The pilot could be anywhere, too, with no need for visuals or even instruments, because whatever the Hive Queen knew from any of her daughters was known by all the others.

[She stood over the Hive Queen's body while Ender took holoid images of the corpse.](#)

"Don't touch it," Ender said. "She'll crumble into dust."

"So I guess this means interrogation is out of the question," said Carlotta.

"Go ahead and ask her anything," said Sergeant.

Carlotta didn't feel like joking any longer. "Somebody piloted this boat, and it wasn't her. But I can't trace the communications system because there isn't one."

Ender was oblivious to their concerns. "I've got all the images I can and they're stored back on Herodotus. So I'm going to take a sample."

"What happened to 'crumble into dust'?" asked Sergeant.

"I'll be careful," said Ender.

Carlotta saw that Ender really did have a delicate touch -- he lifted off sections of dried-up Hive Queen from various regions of the corpse, but never disturbed anything, or even pressed downward. Just nipped a bit, raising it as he did, and pushed it into self-sealing sample bags.

"The Formics were really good at genetics," said Carlotta.

"But no lab," said Ender. "Not here, anyway. Or their lab was the Queen's own ovaries. By an act of will she could decide when to extrude an egg that would become a new queen. And presumably to create an egg that would become a rab instead of a worker."

"It can't have been reflexive," said Sergeant. "She had to plan what she was doing, at least when she was making rabs."

"And while she was doing that," said Carlotta, "who was piloting the ship?"

"She was," said Ender.

"And who was tending to the ecotat, and who was doing maintenance everywhere, and who was reporting to the other Hive Queens on other worlds?"

"She was," said Sergeant. "Hive Queens are smarter than we are."

"Multitasking is fine, but was she really seeing and hearing the sensory input of all her workers at the same time, equally well? Or did she concentrate her attention where it was needed?"

"The individual Formic workers weren't just an extension of her mind," said Sergeant. "Not like hands and feet. More like perfectly obedient ... children."

"Somebody piloted this ship," said Carlotta, "and she wasn't there to control them. What if some of the Formic workers survived her death? If she wasn't controlling every thought in their heads, if they had the independence to learn their job and do it even when the Queen wasn't paying attention, then when she died, they could go on."

"No," said Sergeant. "It makes sense, but we know that every Formic worker died when the Hive Queens died. There were assault teams on some of the Formic planets when Wiggin killed the Hive Queens, and the human soldier reported that all the Formics stopped fighting at once. Stopped running, stopped doing anything. They lay down and died."

"But they lay down," said Carlotta.

"Dropped," said Sergeant.

"I read the same reports," said Ender. "They lay down. Some of them had vital signs for as long as half an hour. So Carlotta's right. There were at least some body systems in the workers that kept going for at least a little while after the Hive Queens died."

"What if this Hive Queen, knowing she was going to die, gave some of her workers instructions to keep piloting the ship?" asked Carlotta.

The others nodded. "We can't know what mechanism makes the Formics die when the Queen does," said Ender. "Maybe there's an exception."

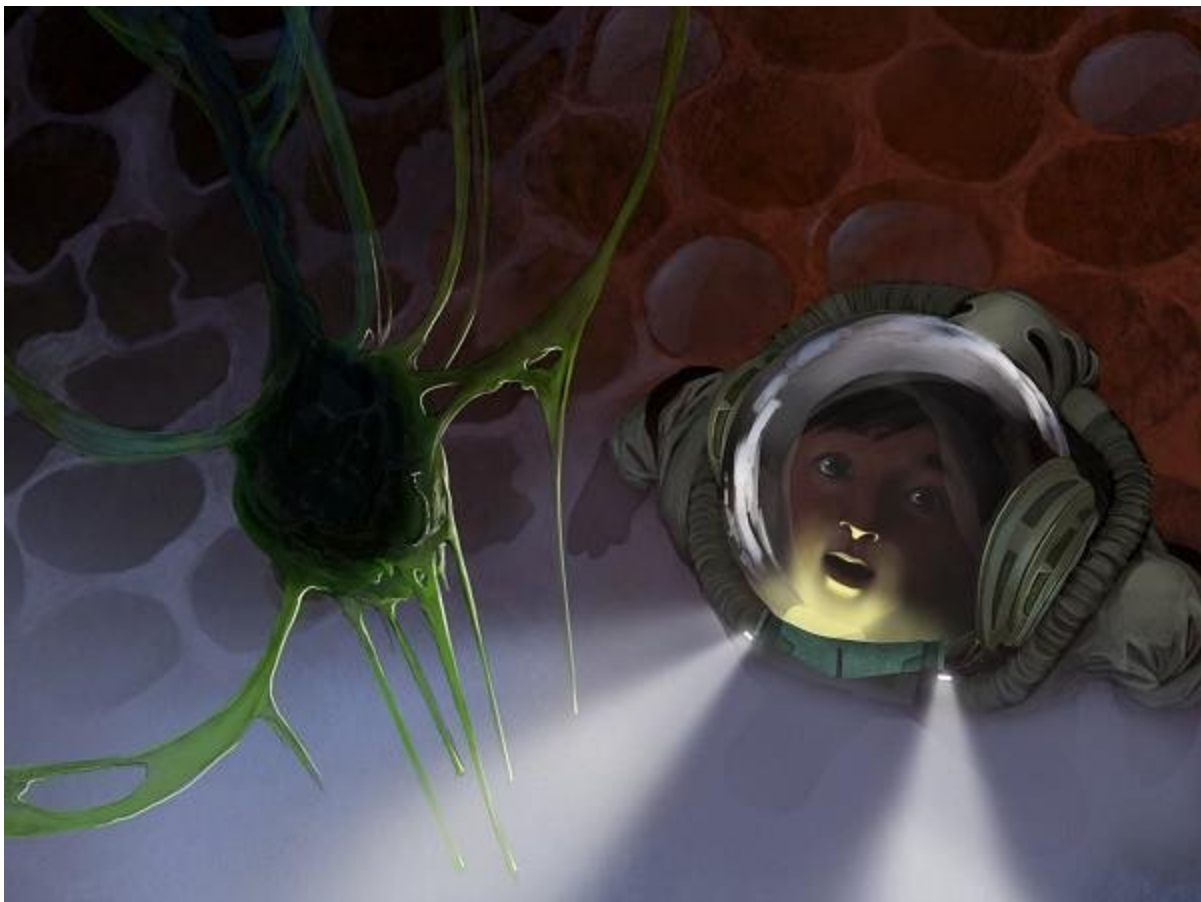
"Let's find the helm and see," said Sergeant.

Carlotta looked out over the sea of rot that surrounded her. "Home sweet home," she said. "I'm trying to see this the way she did, when she was alive. All these little holes were like wombs for her eggs. All these slugs were being herded here to feed her and feed her babies."

Ender pointed up. "Don't forget the ceiling."

Carlotta looked up. Lots of stringy protuberances hung down from the highest points. A few of them had melon-sized balls hanging from them.

"What's that?" Carlotta asked.



"Cocoons. I'm sure they're all dead, but I'm going to want to take one back to the lab to study, if I can," said Ender. "Everything that's on the floor has

been contaminated with that bacterial soup of decay. But larvae that cocooned themselves might still have clean genetic material I can study."

"Not our highest priority," said Sergeant.

"But not our lowest, either," said Ender. "We obviously have time to stop and chat. So let's collect a sample or two before we leave the Room of Goo."

"You going to take a slug back? And the bacteria?" asked Sergeant.

"Already collected samples of those on the way in."

"You were supposed to be our rear guard, not a prancing naturalist," said Sergeant.

"Nothing attacked us from behind," said Ender. "Hive Queens aren't the only ones who can multitask."

"Boys," said Carlotta. "Is this how our whole lives are going to be? The two of you sniping at each other?"

"Let's get one thing clear," said Ender. "Only one person has been sniping and it wasn't me. I've followed every order without complaint; I've criticized nothing. It's Sergeant who's determined to catch me doing something wrong. But I'm not. Carlotta said it -- the Hive Queens were expert geneticists, and they worked on their own genome to create the rabs. So what I collect here might teach us science that the human race hasn't developed on its own. It might save our lives."

"And here's where you're both so stupid it hurts," said Carlotta. "The illusion in here is so good that it fooled you both."

"What illusion?" asked Sergeant.

"The illusion of gravity," said Carlotta.

She watched in triumph as they realized: The cocoon wasn't going to drop when they cut it loose.

"But the other cocoons fell," said Ender lamely.

"During deceleration," said Carlotta. "The ship turned around and the rockets pushed upward to slow this big rock down. That's when the cocoons dropped."

"But all this liquid," said Sergeant. "It clings to the floor."

"It clings to the egg holes," said Carlotta. "It's not liquid, it's goo. Most of the voyage is in zero-g. If the eggs and larvae need liquid to grow in, it has to be gelatinous so it stays put, or the Queen would be drowning in it."

Ender was, of course, extrapolating. "The Hive Queen needs an environment just like home," he said. "On a planet, the liquid might just be water, the larvae would climb to the ceiling to make their cocoons. So they make this place look like that and function like that even without gravity."

"Mags zero," said Sergeant. In a moment he was flying gently up to the nearest cocoon. With his laser pistol he deftly severed the stem, then floated back down holding the cocoon by that half of the stem.

Ender shrank an expandable bag around the cocoon and put it into the sample pack. "Thanks," he said.

"Now you'll try to baby that thing to keep from damaging it," said Sergeant. "Which means you won't be much help fighting."

"Sergeant," said Carlotta, "he learned a lot from the exploded rab corpse you brought back in the Puppy; he can learn from the DNA in a crushed cocoon. So he's not going to baby it, he's going to do his job."

"He was going to baby it," said Sergeant, "until you said that."

Ender slapped his sample pack. Hard. "Eh," he said. "Andrew Delphiki, reporting for duty, sir."

Sergeant couldn't help smiling. "Point taken. All right, Carlotta, where do you want to go?"

"The thing I'm afraid of," said Carlotta, "is going out the wrong door and letting in a bunch of feral rabs. They'd go for the new slugs and make hash of the working rabs if they tried to interfere."

"If we sedated them, then when they collide with this bacterial soup, I think they'll stick," said Ender. "If they don't drown, they'll dissolve."

"We'll do as little damage as possible," said Sergeant, "but there's no point in leaving the way we came, because the tracks just loop back to the starting point."

Carlotta agreed, but still had no advice about where to go. "The question is, will the helm be located at the hub, where it's equally distant from all the rockets and sensors, so all the controls and connections are the same length? Or at one edge, where it might have viewports?"

"If it has viewports," said Sergeant, "then they'll be as far forward as possible, so that they get maximum protection from the rock."



"But what good are viewports that only look in one direction?" asked Carlotta. "This ship has circular symmetry, there's no belly or back, like our ships have . So . . . more than one control room?"

Sergeant nodded. "And the control rooms are sealed off from each other, so damage to one doesn't cause atmosphere loss in the others."

"The pilots may be hiding from the feral rabs in just one of the control rooms," said Ender.

"So we go all the way forward," said Sergeant, "and then try for control rooms at the perimeter, exactly centered between the standpipes."

"Best view," said Carlotta.

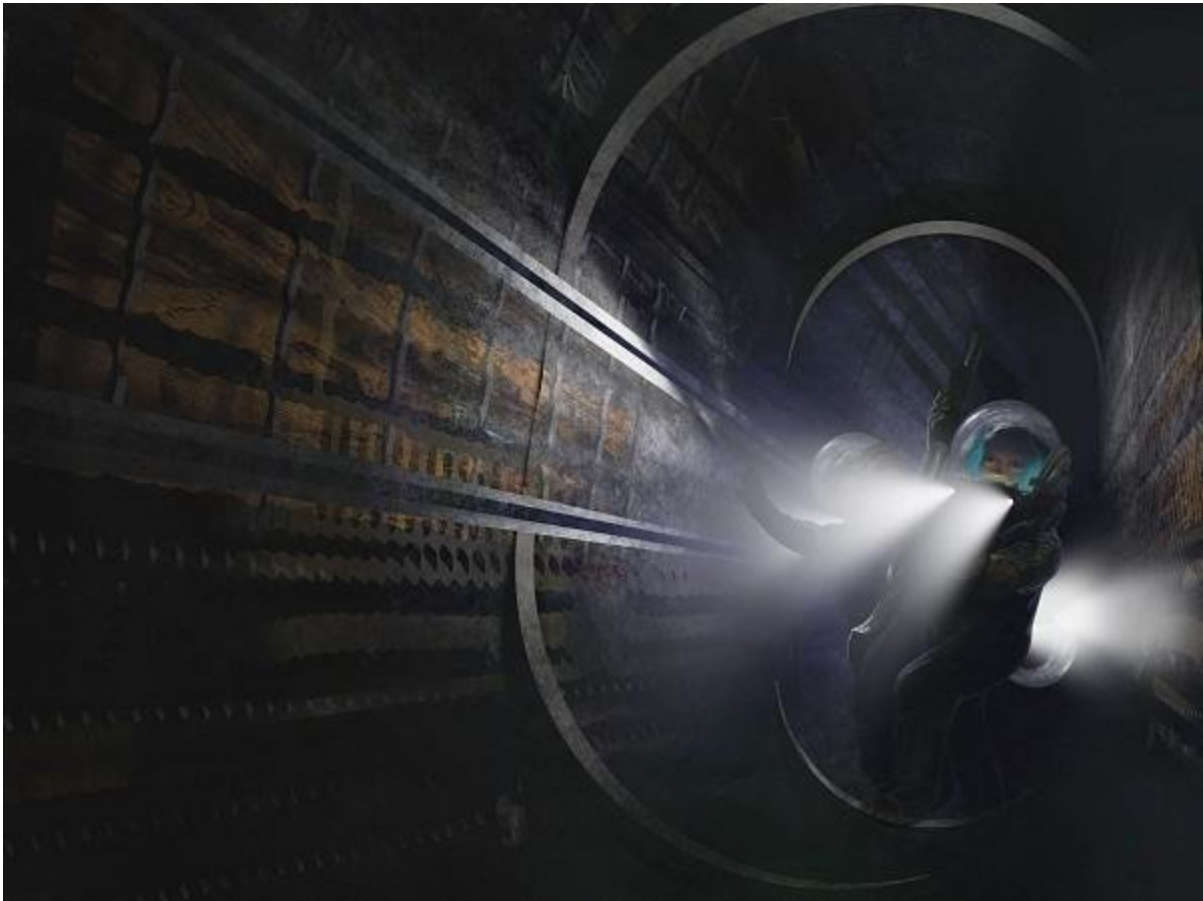
"If the Formic workers ate these slugs, too," said Sergeant, "would there be a delivery system leading there?"

"I don't think so," said Ender. "The Hive Queen stays with the eggs and food comes to her. But the workers catch their meals between shifts."

"The question is, how far forward are we already?" asked Sergeant.

Good question. They had come a long way through the tram tunnel. "Map," said Carlotta.

A three-dimensional model of the ship seemed to stand half a meter away, in front of her visor. Of course there was nothing there at all -- it was just an illusion on the visor itself. The visor could see where she looked and when she made a little popping sound with her lips, it zoomed in. A click with her tongue zoomed out.



"We're actually farther forward than the back of the rock," she said. "The Hive Queen is surrounded by rock above and at the sides. Anything with viewports is going to be aft of here."

"So we passed the helm getting here," said Sergeant, sounding frustrated.

Sergeant led the way to one of the five obvious doors at the perimeter.

"How did you pick this one?" asked Carlotta.

"Eeny meeny," said Sergeant.

At the door, they found the cloud of debris again and a couple of eager rabs. A shot of gas and Carlotta closed the door again. At the next door, it was the same, and this time Sergeant led them through, they closed the door behind them, and fogged their way through to a passage leading aft -- down, the way the corridors were oriented for Formics; to the right, the way they were oriented as they walked along the wall of the low wide tunnel so they could stand upright.

The passage was all afloat with the debris of feral rab life. "What are they finding to eat?" asked Carlotta.

"All the debris is rab body parts," said Ender. "They eat each other."

They were at a level now that Carlotta's map said should be just aft of the intersection of rock and hull. "If there are viewports at all, they could begin at this level."

"Maximum shelter," said Sergeant. "Let's give this level a shot."

They fogged the corridor and began to make the circuit. There were doors but they all led inward, toward the hub.

"Maybe we were wrong and the control room is in the hub," said Carlotta.

"Might as well see," said Sergeant.



They took up their standard positions at the door and Carlotta opened it.

It felt as if all the rabs on the ship leapt at her. Carlotta was knocked into the opposite wall. Both Sergeant and Ender sprayed like crazy, but it took several seconds for the rabs to fall into a stupor, and in that time, two got claws up under Carlotta's visor. If they had understood human anatomy, they could have severed her carotid artery, but instead they went for the soft place under her jaw. The pain was exquisite.

Carlotta tried to crawl away, but something had hold of her leg and wouldn't let go.

Sergeant. It was Sergeant holding her. All the rabs that had poured out of the inner chamber were inert, floating and bouncing around with the force of their original launch. Ender was still spraying fog into the room. Nothing was coming out.

"Bloody mess," muttered Sergeant. "Who ever knew the girl had so much blood in her?"

Within a minute, he had a coagulant pad in place and anesthetic was doing its job.

"Can you still use your tongue?" asked Sergeant. "Talk?"

Carlotta made a try. The anesthetic was numbing her tongue a little, but she could move it. "Talk fine," she said.

Ender came back then. "How's she doing?"

"Just soft flesh damage under the jaw. Nothing to the throat, and the meds will have it all healed up in a couple of hours."

"Wish I knew how long the sedatives would hold," said Ender.

"What were you doing in there?" asked Sergeant.

That's when Carlotta realized Ender must have gone inside the chamber that the rabs had come out of.

"It's a breeding chamber. They were protecting their young."

"Any queens?" asked Sergeant.

"More like seals -- mothers and their pups gathered around them. Huge room. I think it's the control center," said Ender. "All the cabling is routed through there. Ductwork everywhere, ducts filled with cables and wires, lots of maintenance doors on everything."

"Let's go before they wake up," said Sergeant. "I think this might still be the level of the helm or helms. If all the controls are routed through the hub, they must be coming from somewhere and leading to somewhere. Might be on this level."

But it wasn't. It was on the next level aft, which they reached an hour later. They also learned that the recovery time from the sedative mix was longer than that hour, because no rabs woke up. For all they knew, the fog was lethal and they'd never wake up.

Carlotta knew the door of a helm room when she saw it. It lay in the floor beneath their feet, and it was exceptionally wide and high. There was also a window in the door, and there was light on the other side. Bright light. Sunlight. They were on the side of the ship facing the sun right now.



"This isn't it," she said. "There has to be a way to block the sunlight when it's shining in the ports, and it isn't being blocked. But it'll be a room like this, farther along."

It took a while to work their way around the ship. They fogged the corridors as they went, because there was debris -- but a lot less. And then Carlotta realized something and made them stop. "This sedative is going to work against the pilots, too -- they're bound to be biologically related to Formics, even if they aren't Formics themselves. We've got to wait for the fog to dissipate before we open a door."

"The ventilation system is slow," said Ender.

"Maybe we want them to get a little dose of the sedative," said Sergeant.
"Not a full spray, but whatever seeps in from the corridor."

"They won't like it," said Carlotta.

"If they're asleep, they won't mind anything," said Sergeant.

Carlotta conceded the point, though she still didn't like it. They opened the next helm door, a fifth of the way around the ship, where the sunlight wasn't so direct. It was a helm all right, several Formic-shaped perches and control sets. Lots of unlabeled dials and displays that consisted of arrangements of small lights. And perches in front of the viewports, so observers could be stationed there.

But there wasn't a soul in the room. Not even a corpse.

"Proof of concept, anyway," said Sergeant. "Now we know that helm rooms are arranged symmetrically around the hull, and not hidden away in the hub."

"And we know the Formics wanted to look, not just take the Hive Queen's data," said Ender.

"Or this is how she got her data," said Carlotta.

"Could be," said Sergeant. "Observers in all the helm rooms, but actual pilots in only one."

"So let's go find the one," she said.

Sergeant seemed not to mind that she had, in effect, preemptively given the order. He led the way back into the corridor. No need for more spray -- the fog they had originally sprayed was still spreading through this corridor all the way around the ship. In smaller concentration, it wasn't so quick -- there were rabs still wagging their limbs and jaws. But Sergeant and Ender didn't spray again. These rabs weren't trying to attack anything, they were trying to stay awake. And failing.

The third helm was dark. Nightside. But when Carlotta shone her helmlight on the door, she pointed to shininess on the metal near the lower and upper sills. This door had been opened repeatedly in recent years.

They got in position. Carlotta stood away from where the opening would be -- lesson learned -- and shifted the lever. The door slid open.

Nothing came out. Not a sound from inside.

Sergeant lowered himself into the room and drifted downward, toward the wall with the viewports, setting his helmet to illuminate the room and do a sweep of motion search.

"No movement," he said softly. "But there's a heat source."

Carlotta came into the room.



Ender hesitated at the doorway. "Keep watch out here?" he asked.

"Come in and shut the door," said Sergeant. "We may have found our pilots."

Carlotta got to the windowed wall and then followed Sergeant as he walked lightly toward the control bay of the helm.

Unmoving, several small shapes with iridescent colors clung to the control panel. They were smaller than Carlotta, about half her height, but longer than the rabs. They had wings -- that was the iridescence. No claws. In fact, the two front arms on each side seemed to be fused together, parting only near the end. But the "Y" formed by the ends of the feet was able to grasp levers and controls. And the jaws were Formic-like, also able to grasp.

"What are they?" asked Carlotta softly. "Did the Hive Queens breed special pilot creatures?"

"No," Ender said, focusing his eyes on the creatures.

"Formics?" asked Sergeant. "These are Formics?"

"Pretty sure," said Ender. "Males, I think."

"Why didn't they die when the Hive Queen died?" asked Carlotta.

"Very interesting question," said Ender. "But maybe they don't react the way the workers do. Maybe when a Hive Queen dies, they stay alive so they can attach to the next one." Then he said, "Wait, I think we're as close as they can bear. That one is about to take flight."

Carlotta could see it now, too. The wings were extending. The eyes were standing straight up. "Is there any hope of communicating with them?" she asked.

"I hope we're communicating lack of threat," said Ender. "Don't point your hands at them. Set the shotguns down."

"No," said Sergeant.

"You're right," said Ender. "But the two of you back away, all right? Let me go in unarmed and alone."

Carlotta immediately complied; a moment later, Sergeant reached the same conclusion. Ender sent his shotgun drifting slowly toward Sergeant. He took off his helmet and sent it toward Carlotta. Then he rolled over onto his back.

Carlotta realized that this put his eyes on the top of his head, like the Formic eyes. She caught his helmet and held it.

Ender was keeping his arms down at his sides as he drifted toward the control panel where the Formics waited. Carlotta realized he was treating his arms like wings, showing them folded against his body. He was imitating their posture. Was this how the Formics showed submission? Were they submitting to us, and is Ender now submitting to them?

As Ender drifted closer to them, the Formics began to move. They were so small. Staying hooked to various controls -- controls that were definitely not designed for their use, Carlotta could see that now -- three of the five of them reached out for Ender's head.

She heard Sergeant's quick intake of breath.

"Let him be," came the Giant's voice softly through the helmets. "It's a chance that he has to take."

Carlotta could not help but marvel at Ender's stillness as the Formic males reached out and touched his head, bringing him carefully to a stop. Those Y-shaped claws, the mouths so near his face. The residual pain in her jaw reminded her of how dangerous it could be to let aliens near your head.

The three Formics who were holding him lowered their mouths toward his head. The other two were standing watch, it seemed.

They pressed the tips of their forejaws against Ender's head.

Ender let out a low moan, almost a cry.

Sergeant started forward.

"No," said the Giant.

Carlotta caught Sergeant, helped him back down to where his boots could remagnetize to the floor.

Ender sighed again. Again. Then his voice came, an urgent whisper. "Don't hurt them," he said. "They're showing me."

"Showing you what?" asked Carlotta, trying to keep her voice soft, to keep the fear out of it. Who knew what sense the Formics could make of the sounds they managed to hear?

"Everything," said Ender. "How they've lived since the Queen died."

—*shadows-in-flight*—

CHAPTER 10

Ender had never felt such loss of control over his own mind. Even in a nightmare, when nothing is going the way you want, the images still came from somewhere. You knew what you were seeing.

But the images that started passing through his mind the moment the Formic males touched him were chaotic and strange. Half the time he didn't even know what he was seeing.

Slow down! he felt as if his mind were shouting at them. Yet they did not respond at all. He caught glimpses of this and that. The Hive Queen alive. The small males flying around her, and then landing on her. Some she batted away, but others she helped stay in place while they attached. Images of the Hive Queen's own hand bringing slugs to the mouths of the males.

But as Ender experienced it, the slugs came to his own mouth. He smelled them, he saw them wriggle, and they looked delicious. His mouth watered. He was so, so hungry.

Ender tried to picture someone moving slowly, but their images overwhelmed what he was imagining. Then, desperate for communication, he tried simply feeling sluggish. Heavy-lidded. Tired.

He got a jolt of some strong emotion that would certainly have wakened him, if he had really been dozing off. The emotion wasn't anger, it was -- alertness. They sent him what they wanted him to feel.

They were definitely in control of this exchange.

He tried something else. He took an image they gave him -- this time it seemed to be rabs bouncing around in a corridor -- and tried to freeze it. Hold still. Wait.

Immediately they sent the image again; again he froze it. Examined it.

And now they understood. The next image came, not as a pure memory, in motion, but rather as a frozen moment.

Now he saw the image of a Hive Queen, tall, magnificent; he felt the devotion they felt for her, and the hunger as well. They needed to be close to her.

She was covered with drones. If Ender hadn't seen her without the males, he would have assumed their backs were her belly, they coated her so completely.

Then he felt himself become one of the drones. Again the image of her feeding him, but as she lowered the slug toward his mouth, she let go of it. The slug dropped away out of reach.

The world seemed to sway; it was the Queen swaying. Then she lay down, half coiling within the circle of her private zone. Even as she pulled herself downward, she made sure not to crush any of her males. She was protecting them, loving them till the end.

Then Ender felt something vital go out of his mind. He realized that the warmth and light he had felt when he was one of the attached drones was the mind of the Hive Queen. And now it was gone.

The males, one by one, detached. As one of them, Ender understood that it was time for them to look for a new queen. She hadn't eaten them, so they were valued highly and allowed to help a new queen seed the hive.

They rose into the air and flew. Around them was the constant pushing and shepherding of the slugs, the rabs, coming up all the ramps.

Something else, though. Formic workers, becoming limp. Unlike the Queen, they didn't pull themselves down to the ground. They drifted, floated, rose, fell, depending on the eddies of air in the Hive Queen's chamber.

All these images of dying Formics came as still pictures, one after another -
- it was a change from when he was an attached drone, then a flying one.

There was no Queen. Nothing but Formic workers, and they were all dying. All dead.

Now a single drone was putting images into his mind. But since he had experienced the desperate search for a new queen, each drone pressing images into the minds of the others, that was now what he gave to Ender.

Again Ender tried to freeze the image, but instead the drone moved on. He felt a sense of loss, emptiness. It wasn't just the death of the Queen. The drones had images of every part of the ship, many of which Ender recognized from his travels. But each view ended abruptly; he was momentarily blind.

He realized what they were saying in this image-language. The drones had shared in the Queen's connection with all the Formic workers. They were the minds most closely bound with hers, and she shared everything with them.

They understood the whole ship. They were used to being able to watch any part of the ship at any time. When she died, they might have continued to connect with the Formic workers. But they died with the Queen. All that remained to the drones was each other's vision, and since they were all in the same room, they were all seeing the same thing. Dead Queen. Rabs herding the slugs up the ramps. Dead Formic workers.

They went to a door. They had never opened one with their own limbs. But they all had the memory of being inside the mind of a worker when she opened the door. They knew exactly where the lever was and how it felt to work it. Only it was hard. The drone's hand slipped off the lever twice -- and to Ender, as if in a nightmare, it felt as if his own hand had slipped off.

But the door opened eventually and they flew outside. One of them stopped to close the door. Ender was that one for a moment; then he was a different one.

They all had the same destination: the helm. Ender knew what the place felt like to the drones. It was the most vital work of the whole colony. No matter what the Queen had been doing at any given moment, one or another of the

drones always looked out through the eyes of the worker who was sitting at the helm, watching her choices, her actions. The guidance of the ship, the health of the ship, always there was a drone involved.

Then a realization swept over Ender and made him shudder. Just as the drones each had their own mind, separate from the Queen's, no matter how tightly they were linked, so also the Formic at the controls had had her own mind, her own will. She was piloting the ship. The Hive Queen had given an order -- an image of what was wanted -- but the worker was carrying out the labor herself. The worker understood the task. The drones didn't control her; they sat inside her mind and observed, prompting her now and then, but she was doing it.

If the Formic workers had minds of their own, perhaps there were occasional individuals who could resist the power of the Queen's mind. Perhaps there were free workers.

Thinking of free workers made him realize that the workers who obeyed the Hive Queen as perfectly as they could, they were slaves. They were her daughters, but she refused to let them have minds of their own.

Yet the worker had piloted a starship. It hadn't understood the astrophysics, the mathematics, but it understood the Hive Queen's plans and orders, and it carried them out using its own mind, its own skills and habits and experience.

We misunderstood them completely, thought Ender. We thought the Hive Queen was the mind of the whole colony. But she was not. They had their own wills, just like humans, but she had the power to force obedience. And when she wasn't checking on them, the drones were.

There was nothing subtle about the Hive Queen's control of her worker-daughters. She was overwhelming. They were swallowed up. And even when only the drones remained in a worker's mind, watching, they overwhelmed the worker. In some ways, because their whole attention was devoted to the immediate task, the drones had a stronger presence in the workers' minds.

When the workers died, the drones were left to themselves, to each other. They had lost the Queen. Unlike the workers, they experienced her, not as a suffocating force, but rather as a being of light, an angel in their minds. She loved them and they never forgot it for an instant. But besides losing the Queen, they had also lost the workers. They had lost their vision of the whole ship.

That's why they went to the helm. It was the most important job of all. They could no longer see what was happening. But they had to see, and since there was no daughter queen to attach to, to restore the network of vision, the drones went to the helm themselves.

Once they got there -- here, Ender realized -- they pulled the workers' bodies off their perches and set them adrift. The drones remembered all the tasks that the workers had done while the drones were inside their minds; now they carried out those tasks. Checking the instruments. Looking through the viewports.

For the rabs assigned to cleanup work were going feral. Their job was to eat anything spilled or dead in the corridors. When the Queen and all the workers died, they had an enormous feast of dead Formics throughout the ship. It was their job. The drones even let them into the helm to take apart and consume the bodies of the Formics.

With the overabundance of food, the rab population grew; then all the dead Formics they could find were eaten, and the rabs were still there. When the last dead Formics were consumed, they found that their population had expanded too fast. There wasn't enough to eat. They were starving.

So the rabs went wild. Or rather a few of them went wild, but within a few generations, those wild ones were the only ones still reproducing in the corridors of the ship.

The drones realized what was happening in time to seal off the Hive Queen's chamber and their own helm. They also sealed off the doors leading "outside," or into the ecotat.

This drove the rabs insane. Cut off not only from a supply of corpses but also from any access to the slugs, they went crazy, eating each other, eating their mates, their own young.

But in their frenzy they broke into four of the tram tubes. Now the rabs inside the ecotat, as they collected slugs and put them into the trams, were really feeding the feral rabs. Only one tram continued to send unneeded slugs into the Queen's lair. The only reason the rabs left that one alone was that they were getting plenty to eat from the other four. It didn't occur to their tiny minds to search for more.

All of this Ender received through visions and feelings put into his mind. It was a constant struggle to make sense of what he was seeing, but he never lost track of the intensity of purpose that the drones felt as they, through the one drone, "talked" to him.

It finally dawned on him what they wanted. Give us the Hive Queen. He pictured each of his sibs and himself, and showed that they were also searching for the Hive Queen. He showed them searching through the Herodotus and finding nothing. He hoped they were getting the message: We have no Hive Queen.



In reply, an image came into his mind, a very clear one. A young man under the open sky of a planet, carrying a cocoon like the one Ender had in his samples case.

"They want a cocoon," said Ender. "Get the cocoon we took and give it to them."

The drones let go of him and his mind came back. No, his mind had been there all along. He had simply lost full control of it until the drones left him alone. He felt so small and empty.

Ender opened his eyes and maneuvered himself to watch as Carlotta opened the sample case and took out the cocoon.

At once the drones swarmed to it, seized it, flew with it to the middle of the room, pressed themselves against it.

After a long moment, they let go of it and flew together to a corner of the room, where they swarmed, but not in the normal way. They kept bumping into each other -- hard enough that it would bruise a human. Bumping, bumping.

And he realized: They're grieving. They're so sad.

The cocoon continued drifting. Ender moved near it, caught it, returned it to the sample case.

As soon as the case was closed, a drone came back to him, flying so fast that Ender thought he was being attacked. He caught a glimpse of the ever-alert Sergeant aiming the fog at the drone, but Ender didn't even have to say no. Carlotta put out a restraining hand.

The drone landed and latched on to him. Images flooded Ender's mind again, but not in the confused way. There was despair and hunger in the drone's message, but he was not angry. Nor were the other drones, whom Ender could sense contributing to the message.

The cocoon that Ender had offered them was empty. Dead. It was just another of the cocoons from the Queen's chamber -- they had all died with the Queen.



But they knew of a living Queen, one who had never been on this ship. They needed her now. A human had her, and they could even show Ender his face, but he had no idea who it was.

They showed him the inside of the ecotat, all the plants, the small animals. Trees, insects, grasses, flowers, roots, small climbers, creepers, all inside the cylinder.

They showed him Formic workers loading plants and animals into the huge insectile landing vehicles and launching them down through the atmosphere, where they opened and Formic workers unloaded them, planted things, reducing all the native flora and fauna to protoplasmic goo like the vile liquid in the Hive Queen's lair.

It's what they were doing on Earth during the scouring of China. Turn the native life-forms into a nutrient-rich soup and then start growing useful Formic plants and animals in it.

But as soon as it was clear that Ender understood, the messenger drone pointedly made the Formic workers disappear.

Then another image of the Formic landing vehicle opening up. Instead of a Formic worker coming out, this time it was a drone. But it wasn't flying. It was creeping on the surface. It was being crushed by the gravity of the planet. It was dying.

They need a Hive Queen. They can't live on a planet's surface unless they're clinging to a queen.

They showed him again the young man with the cocoon, only this time they showed the cocoon opening up under a bright sun on a planet full of life, and when the cocoon tore open, what came out was a Hive Queen.

Ender blotted out that image. I don't have a Hive-Queen-in-a-cocoon for you. Instead he tried to show them images of himself and Sergeant and Carlotta unloading things planting things. But the drone who was touching him rejected the image, blotting it out. It replaced the image with picture of hundreds of Formic workers swarming over the surface of the world, tending fields, carrying loads, building things -- and then he erased the workers.

For some reason they couldn't accept the idea of humans planting their flora and fauna on the planet.

No, no, Ender was missing the point, thinking like a human. They were showing him that the whole thing was pointless to them if there was no queen to populate the world.

Ender was getting more adept with the image-language, and now he repeated back to them the image of the dying Formic workers at the time of the Hive Queen's death. Why? He pushed his inquiry at them with great urgency. Why did the Formic workers die?

They answered him by showing the dead Hive Queen.

Why does the death of the Hive Queen cause the death of the workers?

He had no idea if they really understood. They simply showed the dead Hive Queen again.

So Ender tried juxtaposition. He remembered the dead Hive Queen, then the dying Formics, but then contrasted them with the swarming drones. Dying workers, living drones, dying workers, living drones, and all the time his urgent inquiry.

The drones watched these images, his inquiry, till he had repeated them several times.

Then the messenger let go of him and retreated to the distant corner where the others awaited him.

"What did you say?" asked Sergeant. "Did you piss them off?"

"They know this cocoon is dead," said Ender, "and they want a live one."

"Well, abracadabra," said Carlotta. "What do they think we are? Wizards?"

"They think there's a living Hive Queen in a cocoon somewhere. A human has her. I saw him -- they know his face, it's the same face every time. When they saw our ship and realized we were human, they thought we were bringing that cocoon with us. They thought that's what I had in the sample case."

"Sorry to be such a disappointment," said Sergeant. "Why would they think a Hive Queen cocoon survived?"

Then the two who were wearing their helmets grew quiet, listening. "The Giant's laughing," said Carlotta.

"Put your helmet on," said Sergeant. "You want to hear this."

"My helmet tells them I'm done talking with them, and I'm not."

Sergeant sighed, but Carlotta came close to Ender, sat beside him. He could hear the Giant faintly now.

"It's the Speaker for the Dead," the Giant said. "The Speaker for the Dead has that cocoon. She's alive inside it, that Hive Queen. That's why he could interview her and write his book."

So The Hive Queen was based on truth after all. And these Formics knew about it because all Hive Queens were in constant contact with each other.

But not the drones. Ender realized that the moment the Hive Queen died, the drones had contact only with each other. Their mental powers were much greater than those of the workers, but they didn't match the Hive Queen's ability to project its mental control or contact over seemingly infinite distances. The drones had to be close.

The messenger drone returned and landed on his head.

It had a different message now. Ender saw the life of these drones for the past century. There had been twenty. Now there were only five.

Ender saw the death of each one. It was numbingly alike. They opened the door, and while most of the drones fought off the attacking rabs, a few would fly past them, outmaneuvering the rabs. They went to the ecotat and entered through a portal known only to them. The feral rabs could not get through it.

Inside the ecotat, they would gather all the slugs they could and then fly back, slowly, burdened with the clinging slugs.

As they neared the helm, they would pry off a slug or two and fling it near the horde of rabs pressing against the door of the helm. The rabs immediately went into a feeding frenzy. While they were distracted, the door opened again, and the drones flew in with their remaining slugs.



Only now and then a rab noticed them and bounded upward, clawing. One by one over the centuries, drones were killed. And as fewer drones remained, it became harder to fight off the rabs at the door, and more dangerous.

The expeditions to the ecotat ended. Instead, they opened the door just a crack and closed it at once. Then they fought the rabs that got in, killed them, peeled them, ate them.

But their flesh was nauseating to eat, and worse, they lost more of their brother drones in fighting the rabs that got in. It had been a long time since they had dared to do any such thing. They had been fasting. Two of the drones had died of starvation. The others ate their bodies -- not a strange thing to do, in Formic terms, for the Queen herself would eat drones that she no longer found useful, then cause an egg to hatch as a drone and bring it to take the eaten one's place. Drones were, in a word, delicious.

That's what had kept these five alive till now.

Ender reached into his sample case himself and took out the two slugs he had collected. They were still very much alive; Ender had a clear enough memory of the images of the drones feasting on slugs that he now thought of them as delicious, though of course humans could not metabolize half the proteins in their squirmy bodies.



The drone that had been talking to him waited till last, allowing the others to feed first. The drones were small enough that Ender could see that even a portion of a slug was a substantial meal.

They saved a good part of both slugs for the drone-who-talked-to-humans. He ate last; he ate best.

While they ate, Ender summarized what he had learned.

"I think that meal saved their lives," said Ender.

"A little hard on the slugs," said Sergeant.

"I think they would have been better with cinnamon," said Carlotta.

Ender ignored their humor. There was no such thing as Formic humor, and he was feeling very Formic right now. "They don't see any point in seeding this planet if they don't have a Hive Queen. And we have none to give them."

"At least we can get them food," said Sergeant. "And tame these feral rabs. In fact, we can kill them, if they want. The ship is theirs, so the rabs are theirs, and if they want them dead, we can sedate them and then blast them all. Make the ship safe for the drones again."

"I'll offer," said Ender. "But it won't change the pointlessness of their lives."

"Won't change the pointlessness of ours, either," said Sergeant.

On the ship, the children obeyed the drones' request that they wipe out the feral rabs. There were plenty of domestic rabs alive in the ecotat and the Hive Queen's chamber. By finding and killing all the feral rabs, the children were rendering the drones' lives bearable. They could feed on slugs to their hearts' content. Their debt of gratitude to the humans -- no, the antonines, the leguminotes -- would be considerable.

If Formics could feel gratitude. Were the drones deceiving them, too?

It took the children a couple of hours to clear out the ship, with drones leading them to every pocket of feral rabs. By this, Bean learned something else: The drones' mental abilities extended to sensing the tiny minds of the rabs. What were the individual workers capable of, if the Hive Queen had ever let them alone? Did they have mental abilities comparable to the drones'? Could they "talk" to each other directly? Or would the Queen always sense the conversation and put a stop to it?

Why did they die when the Queen died? Why didn't the drones die? They were, if anything, more dependent on the Queen, and yet when she lay down and died they flew away. Only the workers died. Why?

So many questions.

"Mission accomplished," said Cincinnatus.

—*shadows-in-flight*—

CHAPTER 11

"Two things left to do," said Bean. "Ender's samples -- he needs to get a sample from the drones. Enough to run their genome and compare it to the genome from the dead cocoon. So we can compare male and female, drone and worker."

"I'll try to negotiate a biopsy on some body part that contains their genome. Maybe they kept some relic of the dead ones."

"I already had this planned," said Bean. "While Ender's getting his samples, Carlotta, I need you to figure out a way to get me into the ecotat."

The children were silent.

"No," said Carlotta.

"They must have built the ark with a plan for getting large quantities of plants and animals out of there to ship it down to the planet's surface. However they plan to get that stuff out, I can go in that way."

"It'll kill you," said Ender.

"You're going to dock the Hound with Herodotus at the cargo bay. With both doors open and gravity turned off, a six-year-old could push me into the Hound. You have work to do," he said. "Carlotta, come back with a plan to get me into the ecotat, or don't come back. Ender, get a sample."

"What about me?" asked Cincinnatus.

"Stay with Ender and protect him. I don't think Carlotta will be in any danger."

"No sir," said Cincinnatus. "We stay together. We all watch while Ender gets his sample from the drones, if he can. Then we all go with Carlotta."



The children came back. Bean piloted the Hound for them again, and this time docked it directly over the cargo bay. The Herodotus was designed for this, and soon the doors opened and a much higher ceiling loomed above Bean.

He had not realized how claustrophobic he had felt all these years, how the ceiling had oppressed him as he grew larger and larger. But when it was removed, he felt a great lightening of his spirit. He was almost cheerful.

The children weren't. They were afraid that they would accidentally kill him somehow in the transfer. "That's not fair," said Carlotta. "To put that guilt on us."

"No guilt," said Bean. "I'd rather die doing something than lying here like a melon."

They had never seen a melon growing on the ground.

There was work to do before the transfer. Bean insisted that they transfer all the lab equipment first. Bean watched and tried not to fret as the children learned from the drones how to build sealed laboratories in the ecotat. It was a technology well known on the ark, because when they reached the planet's surface it would take time to find or dig tunnels and caves.

Bean had imagined that he might make the transfer in just a few days, but Carlotta was methodical and slow, testing everything. She also insisted on moving a lot of computers out of Herodotus and getting them powered up and networked in the ecotat. And then the big one.

"I want to move the ansible," she said.

Bean hadn't anticipated that one. "Eventually," he said. "But your network is reaching between the ships just fine. You can access human communications systems just fine from there."

"Ender and I hacked the tech years ago," said Carlotta. "We thought you'd be angry so we didn't tell you."

At last it was time for Bean to make the voyage.

It had been hard enough for him to walk into Herodotus when he took the toddlers aboard and left Petra and the other babies -- for their normal children truly were still babies then, just learning to talk, toddling about on unsteady legs. He hadn't cared much about the uselessness of the enlargements that had been attempted. He knew that even the taller table and larger chair would soon be useless to him. He wasn't going to make another. He knew from the start that he would end up lying on his back or his side in the cargo bay, with gravity set as close to nothing as possible.

But he had walked onto the ship. Now Carlotta cut the gravity to nothing, then turned on the gravitator she had rigged on the Hound. It drew him

upward very slowly. She and Cincinnatus rose with him, rotating him slowly in midair, so that when he reached the padded flooring of the Hound, he settled into it very gently on his back.

"Carlotta," he said, "we can't go until I'm rigged to control the Hound. Bring me my holotop."

She laughed. "We know how you pilot ships, Father. You're deft at it, but the trajectory you used on every trip you've piloted for us would kill you. Cincinnatus is taking you, and instead of an hour, the trip is going to take the best part of a day. So snuggle in and sleep."

—*shadows-in-flight*—

It was a better flight than Bean would have given himself, and as they drifted into the open airlock in the side of the ark, Bean could only admire how deftly Cincinnatus brought the Hound to a stop in the middle of the air.

This high off the ground, Bean felt almost no gravity. Then the door opened and he saw the ecotat with his own eyes for the first time.

The relief he had felt when the ceiling lifted in the Herodotus had been nothing compared to this. It was so large, and the false sun in the center of the opposite hub gave such a sincere imitation of sunlight that Bean felt for a dizzying moment as if he had come back home to Earth.

Then he saw how the world bent upward in both directions, and formed a clearly visible ceiling overhead, with trees and meadows and even small lakes -- ponds, really. But there were birds flying -- had anyone mentioned the birds? -- and while the trees were all from the Formic worlds, Bean had never become an expert on the trees of Earth. They were forest enough for him. The green took his breath away; the strange colors here and there still seemed to belong.



It wasn't a planet, but it was as close to one as he would ever come. He had never thought to be in a living world like this again.

Carlotta and Cincinnatus had rigged a scaffolding opposite the door, and as they drew him from the bay in the wheel, Bean realized that the cloth under him was a sturdy cargo net -- a hammock, but with rods to keep it from collapsing into a wad with him folded up inside it.

When he was completely free of the door, he was resting comfortably within the hammock. Then they swayed him down like good sailors, and the illusion of gravity grew for him as gently and naturally as if he had climbed down a ladder.

It was just a bit more gravity than he had been used to. He had to breathe just a little more deeply and often. But he wasn't panting. He could do this. He could live this way. For a while.

When he was at rest on the ground, the cloth of the hammock under him, the birds came swooping down, and he realized they were not birds at all. They were the drones.

They hovered around him, then came to rest on the ground. Ender came then -- the lab wasn't far away -- and he seemed happy. Too happy for the occasion, really -- his lab work must be going well. Bean had been tracking his lines of research as best he could, but Carlotta had set up this network, and Bean found that she had blocked, or simply not created, the back doors and surreptitious channels he had used constantly on the Herodotus. They were cutting him loose from his close supervision of their lives, even as they solemnly obeyed him in all his overt decisions.

"They want to begin at once," said Ender. "Talking to you."

"Before you die," said Cincinnatus dryly.



"Then we'll start at once," said Bean.

The images came slowly, gently, and feelings were not pushed hard. Suggestions, really.

At first Bean spoke aloud what he was getting from the drones. Ender, who was also touching them and seeing all, affirmed for him that he was understanding them well.

Soon it was Carlotta who kept him company. And then Cincinnatus took his turn. The drones also worked in shifts, two at a time staying with him.

Three days he lived in the dream. Unlike the Hive Queens, Bean did not attempt to hide anything. His whole life he laid bare before the drones. Let them feel what it meant to be a human, a man -- one with responsibilities to others, but ultimately an agent unto himself, free to choose as long as he also accepted the consequences of his choices.

They marveled. They were horrified at some things -- at the idea of murder. Bean let them see that he thought it was murder when the Hive Queen broke off contact with the mind of a worker, killing her. But the drones were merely amused at his obvious misinterpretation. Not like you, she's not like you humans, you don't understand. They didn't say those words, but he understood the idea from their amused, patient, dismissive feelings. Like adults talking to precocious children. Like Bean talking to his own children when they weren't yet two and had not yet begun to educate themselves completely on their own.



At last the drones withdrew themselves, and then Bean slept for real, deeply, completely. Not dreamlessly, but they were the comfortable dreams of ordinary sleep. No nightmares.

Then he woke, and spoke to his children. "I learned much, but what was most interesting were the things the Hive Queen never showed them. They didn't believe that anything was left out, they believed she was completely open to them, but what else could they believe? Their lives were surrounded by the lies she wove for them."

"Parents do that to protect their children, I heard," said Carlotta.

"I heard that too," said Bean. "And it's probably necessary. Just frustrating for an inquirer like me."

"How are you feeling?" she asked him.

"Physically? Look at the machinery and tell me whether I'm alive or not."

"Good heartbeat," she said. "Other vitals fine -- for a man your size."

He slept again. When next he woke, it was dusk, and all three children were gathered around him.

"Father," said Ender. "I have something to tell you. Good and bad. Good, mostly."

"Then tell me," said Bean. "I don't want to die during a preamble. Get to the meat."

"Then here it is," said Ender. "The Formics have inadvertently taught me how to cure our condition. We can turn on the normal human patterns of growth and then the end of growth, without switching off Anton's Key."

"How?" asked Bean.



"They do it with organelles. Like our mitochondria. The queens could mix up a bacterial soup in glands that are only vestigial in the workers and drones. Then they infect the eggs of workers with these bacteria, and the bacteria take up residence in every cell in their bodies.

"The organelles are responsive to the mental connection between the Queen and the workers. They sense whether it's there. And if it isn't, they shut down the metabolism of every cell in the body, virtually at once. We can put the off switch we need in an organelle."

"You can't just make organelles for humans," said Bean. "We've had mitochondria for so long that -- they joined the cells long before there were humans. The mitochondria reproduce when the cells divide. The Hive Queens had to insert their organelles into every egg."

"Right," said Ender.

"This is the clever part," said Carlotta.

"We use a virus to insert the snippet of altered gene into the naturally occurring mitochondria. They get the off-switch and then express it at the appropriate time."

"Well, it's not as if we've reached puberty yet," said Ender. "We have to wait and see. But one thing is certain -- the change has gone through every cell in our bodies."

"You've already done it?" said Bean. His heart raced.

"Calm, calm, Father," said Carlotta.

"Of course we did it," said Cincinnatus.

"And in a few years, we'll see if it worked," said Ender. "If not, we'll still have time to try again. Or try something else."

He slept well that night, better than he had in five long years in space, because his children were safe, and perhaps cured, and certainly able to take care of themselves. He had accomplished it all -- if not directly, then by raising them to be the kind of people who would dare to take the steps necessary to save themselves.

In the morning, they were all busy, but Bean was content to lie there and listen to the sounds of life in the meadow. He didn't know the names of any of the animals, but there were some who hopped and some that chirped and croaked, and some that landed lightly on him and crawled or wriggled to somewhere else and dropped or leapt off of him. He was part of the life here. Soon his body would be even more deeply involved with it. Meanwhile, he was happy.

And maybe when he died, he'd find out that one religion or another was right after all. Maybe Petra would be there waiting for him -- impatient, scolding. "What took you?"

"I had to finish my work."

"Well, you didn't -- the children had to do it."

And others. Sister Carlotta, who saved his life. Poke, who also saved his life, and also died for it. His parents, though he didn't meet them until after the war. His brother Nikolai.

Bean woke again. He hadn't known he was going to fall asleep. But now the children were gathered around him, looking serious.



"You had a little heart incident," said Cincinnatus.

"It's called happiness," said Bean.

He propped himself carefully on his elbows and knees. A position he had not adopted in at least a year, ever since he stopped trying to roll over. He hadn't been sure he could even do it. But there he was, on elbows and knees, like a baby. Panting, exhausted. I can't do this.

"What I want," he said softly, "is to stand in this meadow and walk in the light of the sun."

"Why didn't you say so?" said Carlotta.

They got him to lie back down on the hammock cloth, and then they winched him up to sitting position, and then stood him up on his feet.

The gravity he felt was so slight, so very close to nothing, yet being upright, even with the hammock holding him a little, was taking all his breath.

"I'm going to walk now," he said.

His legs were rubbery under him.

The drones flew to him and clung to his clothing, fluttering to help hold him up. The children gathered around his legs and helped him take one step, then another.

He felt the sun on his face. He felt the ground under his feet. He felt the people who loved him holding on to him and bearing him along.

It was enough.

"I'm going to lie down now," said Bean.

And then he did.

And then he died.

—*shadows-in-flight*—

ADDITIONAL CONTENT

The following content was added by Orson Scott Card specifically for this enhanced Ebook version

[Addition to Chapter 3](#) (1)

[Addition to Chpater 3](#) (2)

[Addition to Chapter 9](#)

—*shadows-in-flight*—

Additional Content From Chapter 3

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Sergeant was so proud of his perfect memory, thought Bean. Yet Bean and Petra had never announced anything to him, advanced though he was for a one-year-old. For of the three children on the *Herodotus*, Sergeant was the one who had never met his mother.

Petra had given birth to Ender -- Andrew -- from her own body, had nursed him, had known him better than any of the children. All the others had been stolen as embryos and implanted in surrogate mothers. It had taken a long time to track them down.

Bella -- Carlotta -- had been located while Bean and Petra were still together; Petra knew her, had loved her.

But Cincinnatus -- Sergeant -- had been located while Petra and Bean were both caught up in military campaigns. She learned of his existence at the same time Bean handed her their divorce papers and announced his decision to take the three children who had Bean's giantism off on a relativistic voyage in order to buy time for scientists to find the cure.

The closest Sergeant ever came to meeting Petra was that for a time Petra's mother took care of him in Armenia.

So whatever Sergeant thought he remembered, it was all manufactured memory, based on stories he had heard and opinions he had formed long after the fact. "I never liked you, I liked Petra," Sergeant said. What he really meant was, "I don't like you now, and invoking the name of my mother is the only thing I can think of that will really hurt you."

Sergeant's complaint was not unjustified. He *had* been torn from the family into which he had been born. They were given no choice; he was given no choice. And it was likely that Sergeant did have some memories, however fragmentary and vague, of the family that took care of him through the first

year of his life. Maybe he even suffered from some separation anxiety for a while.

But Sergeant was too much like Bean for Bean to believe that it had really bothered him at the time. Sergeant was a fighter, and these words he said were weapons, not memories.

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—*shadows-in-flight*—

Additional Content From Chapter 3

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The children had grown up with holograms of their mother, Petra, talking to them. "I love you. I miss you. I wish you could have known your brothers and sisters here on Earth. I know that you're still very young in years, and your siblings here are already adults who have moved on into their lives, married, having children. I hope that someday the same things become possible for you. The great regret of my life is that I was separated from the three of you, from your father. But I see now that it was the only decision that offered any kind of hope for a normal life for the children I kept here *and* for the children your father took with him."

The children had all memorized every word. They could say them along with her. And at various times they had wept while hearing them, repeated them mockingly, screamed them at the hologram, refused to listen, and finally just watched her thoughtfully.

Until they stopped summoning the holograms at all.

Bean thought that the holograms had done their job. They had given the children a relationship with their absent mother. She was grateful that Petra had made the recordings.

Even thought she had never actually sent them.

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—*shadows-in-flight*—

Additional Content From Chapter 9

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It made Carlotta feel a little bitter that the communication between the Hive Queen and her daughters had been so perfect that they didn't need writing, they didn't need intercoms or radios, they didn't even need language. Memories were transferred perfectly. The mother was present within her children's minds always.

While *my* mother ...

Alone of the children, Carlotta knew that Mother had never sent them the hologram messages they had played over and over again.

The question had arisen quite early. "Why are the holograms so jumpy? Between every sentence she shifts."

The Giant's explanations had made perfect sense. "Your mother didn't like making speeches or sending messages. She always felt like she made constant mistakes. I'm sure she edited this a hundred times before she sent it."

Ender had been his normal complacent self, accepting the explanation completely. Sergeant had naturally made snotty remarks about how it was so nice of her to go to so much trouble to send them exactly one highly-edited, unnatural message in all the years that she had known they were on this voyage.

Carlotta alone seemed to understand that the Giant's explanation sounded like a just-so story, designed to fend off a child's question without actually answering it.

Obviously the holograms had been edited. Also, the histories and biographies agreed that Petra wasn't much for public speaking and had largely dropped out of public life after she married Peter the Hegemon. Yet

there was still something wrong with the Giant's explanation, and Carlotta thought she knew what it was.

It seemed obvious to her that it wasn't Mother who had edited her messages, it was the Giant. And that meant that somewhere in the ship's computers there must be some copy or at least a palimpsest of the full, original, uncut message. The Giant had some reason for keeping them from seeing it. Very well, when Carlotta found it, she would keep his secret from the others, if she agreed that the Giant had been right to edit the message.

But that wouldn't stop her from searching.

It was that quest that had prompted Carlotta to become so intimately familiar with the computers on the *Herodotus*, and then all the supporting computer systems and all the ansible record systems on other worlds. Along the way, she became intimately familiar with the inner workings of the ship in a way the others didn't even attempt, and she pretended that her goal was to be able to repair or replace or jury-rig anything.

But she was searching for Mother's messages.

And she found them.

About a year ago, she found a palimpsest in a backup of a backup. It was a fragment of one of the familiar holograms, and the piece that had been accidentally preserved lasted only two seconds. But one of those two seconds had been omitted from the message the Giant had shown them.

There was a date associated with the backup that had been backed up, which gave her a rough upper time limit for when the Giant had done the editing; the lower time limit was the earliest possible time when Mother could have sent a message saying what it said -- that their full siblings, the five normal children of Julian Delphiki and Petra Arkanian, had all left home and were living adult lives.

Then she pulled up transmission records from Earthside ansibles until finally, in the storage computer of an ansible relay on a moon of Saturn

which was almost never visited and only rarely used, she found the entire original transmission from Mother.

Mother had never sent it at all.

Instead, it was part of a message from a computer program that was managing the Giant's investment portfolio. It had been slipped in among financial reports with this notation: "Item culled from the personal computer of Petra Arkanian at the moment of deletion."

And it was nothing like the holograms that the Giant had spliced together. Oh, every moment of the "message from Mother" was in that long transmission, but most of it was not directed to the children at all. Most of it was an angry, sad, lonely, accusatory, but also yearning and forgiving monologue the Petra had made.

It had begun as an attempt to send a message to her first husband, Bean. "I feel like I'm standing at your grave and reporting on my entire life since you died," she began. "Except that unlike most widows, I know you'll actually hear me, and I can really tell you just how much I hate you for stealing three of my children and running away like the coward you always were."

Oh, she was furious. And unfair. Carlotta knew enough of the real story to know that Petra was talking from pure emotion. She was a middle-aged woman when she recorded it; she had been wife of Peter the Hegemon a long time. Yet her words to Bean sounded as hot with emotion as if she had only been wounded by him the day before.

In the process of the long diatribe she kept starting over -- not erasing anything, just saying, "No, I'll never send that," and then beginning again. Several times she stopped to wash her face or get a drink or go to the toilet or whatever, so there were long sequences of recorded furniture.

But at the end, exhausted, sad, she said, "Why should I cause you such pain? To you it's only been a couple of years. And in truth I'm not unhappy. I'm unhappy right *now* but in the main I've done pretty well with the life I've had here, and Peter is a good husband. At least he never stole half my children from me. There I go again. Bitter and sad, sad and bitter. I'm not

going to send this. I suppose it was therapy. Or menopause." Petra sighed. "Delete," she said.

Only the computer had not deleted it. Or if it had, the deletion had been intercepted by the supposed estate-management software and then sent on to the Giant without any editing at all, and without the knowledge of Petra Arkanian.

The Hive Queen communicated with her daughters continuously.

My mother never actually meant to send me a message at all. To the degree she even made a stab at it, she regarded it as a failure and deleted it unsent. The Giant tried to make something out of it. From ten hours of hologram, he had put together five minutes that might be comforting to Petra's children.

Comparatively speaking, Mother never thought of us at all. Just a few minutes among hours spent railing at or forgiving or pleading with the Giant.

The difference is that when a Hive Queen stops talking with her daughters, they die. When I realized that *my* mother had never even tried to talk to me, I deleted the file.

Of course, Carlotta undeleted it immediately and then made several backups on other ansible-linked computers on widely separated sites in the human-settled portion of the galaxy. There might come a time when she wanted to view it again. Perhaps a time when she would share it with her brothers -- wildly volatile Sergeant, placid-to-the-point-of-apathetic Ender.

But so far she had not looked at it a second time.

She didn't have to. Her memory was too good. She could play back every painful moment of the broadcast in her own mind.

That's where the Hive Queen was so tragic. There was no one left to play back anything. No children left to whom she could send a memory.

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—*shadows-in-flight*—

This is a work of fiction. All of the characters, organizations, and events portrayed in this novel are either products of the author's imagination or are used fictitiously.

Shadows in Flight

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